WESTERN GAS

July
1925

View of Lower Market Street, San Francisco, Showing the New General Office Building of the Pacific Gas and Electric Company

20 Cents
the Copy

A MONTHLY JOURNAL DEVOTED TO THE
WESTERN GAS & APPLIANCE INDUSTRIES

Meter Readers are accurate

However, should the Company's Meter Reader make an error and over-read or under-read your Meter, the misreading will automatically correct itself the following month, unless the amount consumed is less than the minimum.

Should such error occur, please notify the Company promptly so that correction may be made.

Learn how to read your meter. Ask for instructions at our office.

PACIFIC GAS AND ELECTRIC COMPANY

P·G·and E·

"PACIFIC SERVICE"

AN IMPORTANT CHANGE IN POLICY

STUDEBAKER herewith announces the discontinuance of the custom of presenting a new line of automobiles each year. Instead of bringing Studebaker Cars dramatically up-to-date once in twelve months, *we shall keep them up-to-date all of the time*—with every improvement and refinement made available by our great engineering and manufacturing resources. This policy not only directly benefits present Studebaker owners, but it also enables purchasers of new cars to obtain models that are always modern—*without the necessity of waiting for annual changes*, and without the danger of their new cars becoming obsolete.

BACK of this new policy is an amazing story—of interest to everyone who owns or expects to own an automobile.

The dramatic success of the present line of Studebaker Cars is one reason for this importan change. Month after month we keep breaking records—sales keep piling up. This year we will sell almost four times as many automobiles as we prdouced in the big boom year which followed the war.

Owners report endurance records, even beyond our greatest expectations. Out in the rugged mountain regions where Studebaker sells four times its normal proportion of cars, owners talk about these models in the most extravagant terms. In 1924 the Corporation's sale of repair parts dropped to $10 per car per year. Mechanical stamina under severe usage—remarkable performance under the most difficult travel conditions—*these are the qualities for which Studebaker Cars have long been noted.*

Surely, these significant facts prove beyond any shadow of doubt that Studebaker Cars are so soundly engineered and manufactured and so eminently satisfactory in the hands of owners, *that drastic annual changes are not required.*

Improvements and refinements will be made from time to time. New features will be added. When our engineering department (maintained at a cost of more than half a million dollars a year) devises an improvement in any model, it will be made without regard to the calendar.

As in the past, we shall continue to pioneer vital betterments that have proved their merit through practical use. Alert, aggressive, receptive to new ideas, resourceful in executing them, guided by scientific research and spurred by imagination, the Studebaker organization proposes to build better motor cars than ever before.

Now you may buy a Studebaker on any day of the year with the confident assurance that the sturdy, thrifty, one-profit car you drive away will not be stigmatized by any act of ours as a "last year's model." Today, in even more generous measure than in the past, Studebaker Cars offer the utmost value for the money.

The Studebaker Corporation of America, South Bend, Ind.

STUDEBAKER
MOTOR CARS

This is a Studebaker Year

WESTERN GAS

626 S. Spring Street,
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Los Angeles, Calif.

447 Sutter Street
Phone GArfield 2772
San Francisco, Calif.

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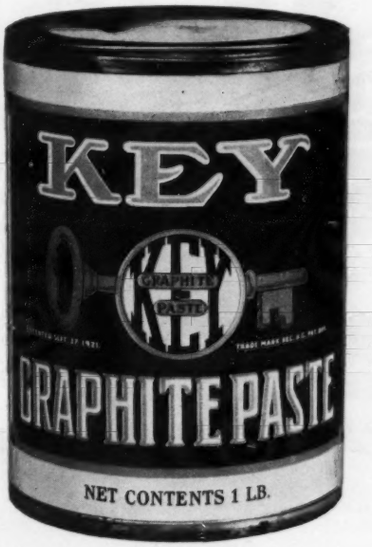

Leaky Screw Thread and Gasket Joints

are no longer a necessary evil where—

KEY GRAPHITE PASTE

IS IN USE

THE TEN *KEY* Commandments

1. Expands under heat instead of shrinking, filling in every little imperfection.
2. Carbonizes instead of oxidizing.
3. Highly resistant to heat—requires 4500° F. to destroy.
4. Simplifies breaking of joints.
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6. Eliminates the use of delicate gaskets.
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9. Is impervious to attacks of acids.
10. No waste—never spoils.

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—there must be a reason...

Southern California Gas Co.
Pacific Gas & Electric Company
Los Angeles Gas & Electric Corp.
San Diego Consolidated Gas & Elec. Co.
Southern Counties Gas Company
General Water Heater Company
Pacific Gas Radiator Company
Pacific Gasoline Company
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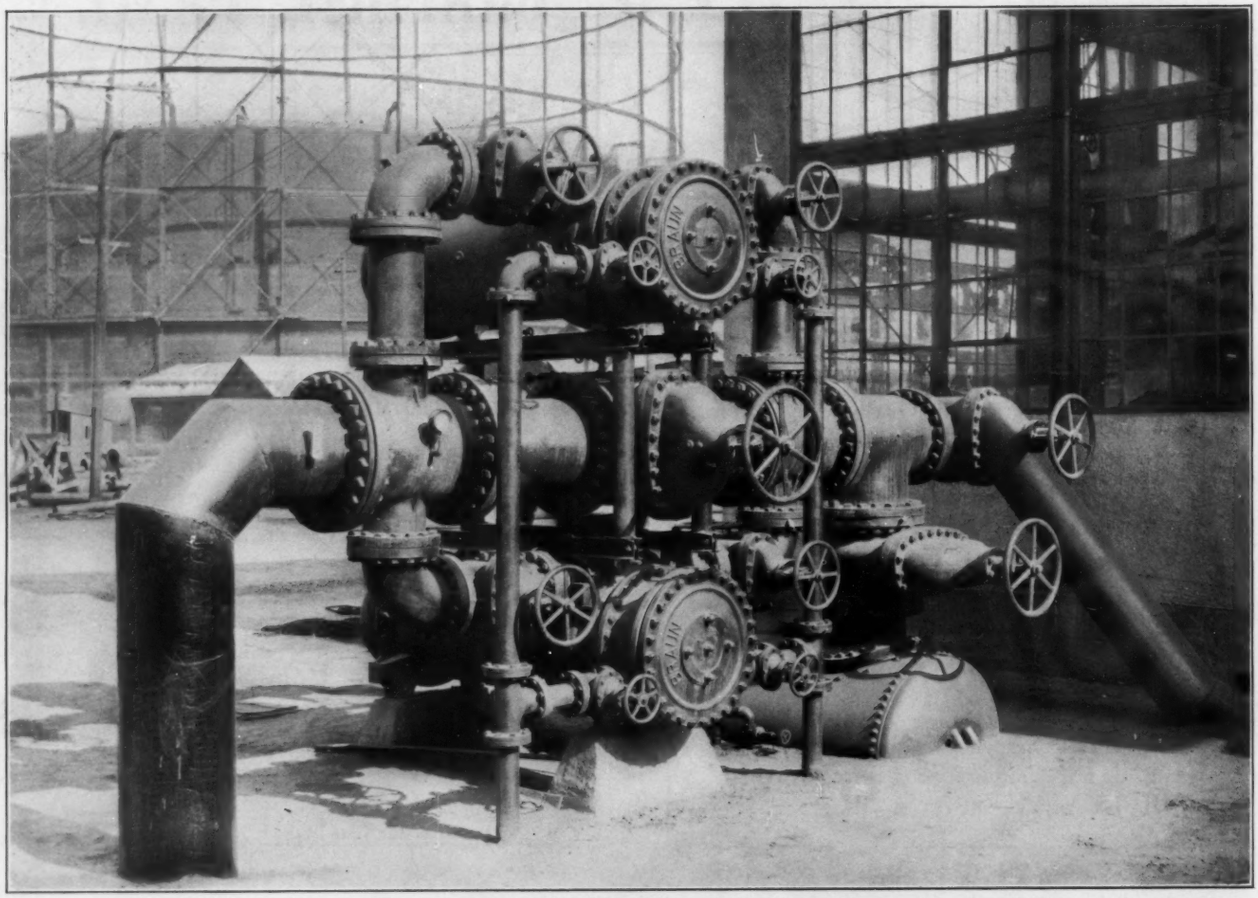

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Coolers
Capacity 18,000,000
Cu. ft. per 24 hrs.

C.F. BRAUN & CO.
Manufacturers *and* Engineers
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Service Measured by Centuries

Cast Iron Pipe

Sand Cast—Centrifugally Cast

For High Pressure Gas Mains
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Uniform Thickness
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Maximum Elasticity
Free from Ordinary Foundry Defects
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UNITED STATES CAST IRON PIPE
OUTLASTS THE
AND FOUNDRY COMPANY
AGES
MORE THAN 250 YEARS OLD

Plain End
Bell and Spigot
Flanged Joints

deLavaud Pipe is made in sizes from 4″ to 16″ diameter. Sand cast pipe in all size — 2″ to 96″ diameter.

United States Cast Iron Pipe and Foundry Company

LOS ANGELES **SAN FRANCISCO** **SEATTLE**

Cast Iron Pipe is Permanent Construction

A Century Old and Still a *Baby*

A BABY indeed was the Gas Light Industry which, a century ago, crossed the Atlantic and established itself in America. City after city introduced gas lighting and by 1875 the country pretty generally was lighted by gas. There were those in the industry at that time who predicted that the peak had been reached and that further development of the gas business was doubtful.

But half a century later what of the Gas Industry! Shades of Van Helmont and Murdock! The year 1925 finds Gas not on the far side of the peak but only in its infancy.

Gas today is the fuel of the age. It cooks the meals of the nation, warms homes in more than 4,600 American cities, heats water daily for millions of baths and lends comfort and happiness wherever it is served.

Gas is playing a tremendous part in the industrial development of the country. It turns the wheels of industry in thousands of cities. The tasks of mankind are less irksome because of the 1,200 uses found for this economical fuel.

Instead of a struggling business little understood and shunned by capital, today the Gas Industry is one of the foremost in America with a capital investment of $4,500,000,000. Its securities are sought after by hundreds of thousands of careful investors. It employs more than 75,000 people and its annual payroll is well over the $100,000,000 mark. In its ranks are great organizers and executives and from its ranks have come soldiers, statesmen and captains of industry.

What may be accomplished during the next century by this virile industry can be judged by its achievements of the past fifty years.

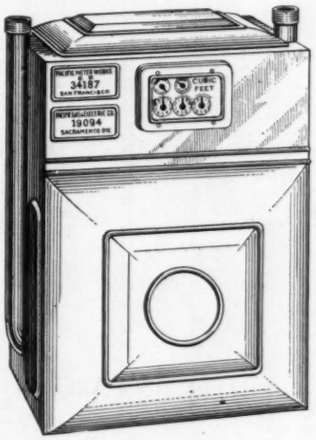
SOUTHERN COUNTIES GAS COMPANY

Sixth Floor,
Los Angeles Gas & Electric Corp. Building,
Los Angeles, Calif.

Pacific Meter Works

OF

AMERICAN METER COMPANY
INCORPORATED



GAS METERS
AND
GAS TESTING
APPARATUS

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LOS ANGELES

Sprague Meters

Represent
Twenty-five Years of
Progress

We Are Proud of Our Service to the West

Sprague Meter Co.

Los Angeles, California
San Francisco, California

-it shuts off-

About all you ask of a valve is that it will open and shut and that it won't leak. Yet how few answer these simple requirements.

The Merco Nordstrom Valve is a lubricated plug valve that never fails.

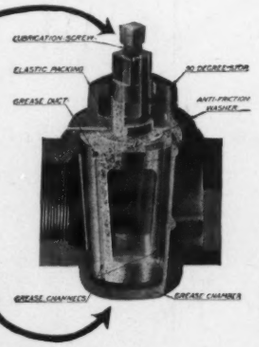
High pressure illuminating gas, corrosive gases, hot or cold liquids do not affect it because the lubricant seals the valve and prevents leakage or sticking.

It won't stick and it won't leak

Lubricant sticks are put in here

Turning down the screw forces the lubricant under the plug here

This lifts the plug by hydraulic pressure and lubricates it at the same time. Write for Catalog.



Merco Nordstrom Valves

Merco Nordstrom Valve Co.

110 W. 40th Street, New York
33 S. Desplaines Street, Chicago
National Building, Cleveland
121 Second Street, San Francisco
613 Washington Avenue, Houston

---out, August First:

CONVENTION NUMBER

Pacific Coast Gas Association

THE thirty-second annual convention of the Pacific Coast Gas Association will be held in Portland, Oregon, August 17th to 20th. The "Convention Number" of *Western Gas* will therefore be the August issue, published on August 1st and dedicated to this big event. The audience will be the entire gas industry of the West, the membership of the P. C. G. A. and all of the paid subscribers of *Western Gas*. At no other time during the year will your advertising register your sales story as it will in this "Convention Issue".

THE September issue will contain a review of what was accomplished at the Convention, announcement of new officers, Association plans for 1926, etc. It would be well to order your advertising to appear in this issue also.

Consider the August and September Issues as a Group

WESTERN GAS

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The Question of

Lampblack Dewatering

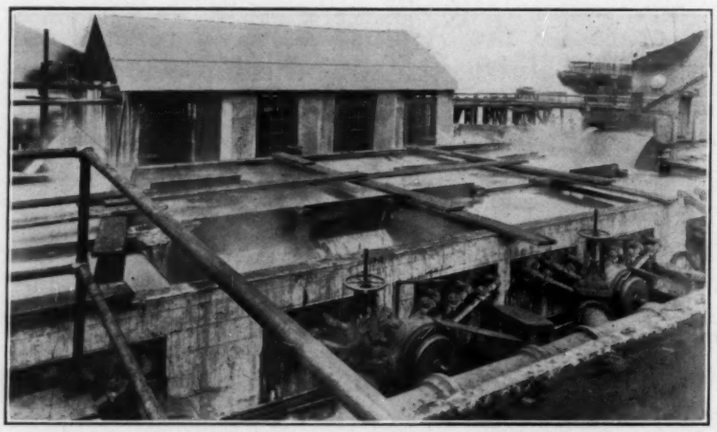
is a very serious one with

Gas Manufacturing Plants

always costly and at times a nuisance

The Oliver Method

simplifies the question in an efficient manner



At the Potrero (S. F.) Plant of the Pacific Gas & Electric Co.
eight 24 Tube Oliver-Borden Thickners
in a concrete tank 48′ x 21′ x 10′
are handling 8,000 gallons of wash water per minute
Clear water is delivered to the bay

Oliver Continuous Filter Co.

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WESTERN GAS

A Monthly Journal of the Gas, Gas Appliance and Natural Gasoline Industries in the *Eleven Western States*

A Monument *to* Western Utility Growth

Pacific Gas and Electric Company General Office Force now Housed in Splendid New Seventeen-Story San Francisco Home. Employee Departments Feature

A MONUMENT, representing the growth and development of Northern California, has been erected by the Pacific Gas and Electric Company at Beale and Market Streets, San Francisco, in its new general office building, excavation for which began May 18, 1923.

Seventeen Stories

The new building, covering the western half of the block between Main and Beale Streets, rises to a height of seventeen stories and contains 134,000 square feet of effective floor space.

Architecturally, the design is both simple and monumental. The exterior treatment of the main shaft is terra cotta with granite base. The first story consists of an arcade with a central entrance on Market Street. The top of the shaft is enriched by a colonuade which is designed to give interesting shadow effects as well as graceful contour.

Arrangement of Offices

The floors throughout the building have been assigned to general office departments in large concentrated areas, some departments requiring two floors. The tendency through the building is toward large open working spaces wherever obtainable, with glass partitions when the character of the work conducted makes sound-proofing desirable.

The first floor is devoted largely to the secretary's office, together with the cashier's and transfer agent's forces, since these have most frequent and intimate contact with the general public.

Employee Departments

A feature of the building is its departments devoted to employee activities. On the first floor is an auditorium with a flat floor for dancing and entertainments, complete stage equipment at one end and the necessary hat and cloak rooms in the rear. It is also contemplated to use this auditorium for stockholders' meetings. The sixteenth floor is given over exclusively to employees' departments. A central lunch room with adequate kitchen facilities is provided, with cafeteria or table d'hote service for both men and women. The Pacific Service Employees' library has been given space on this floor. A women's section with rest and silence rooms has also been provided.

The seventeenth floor has been assigned to a central blueprinting and photostating plant and to the architectural drafting room.

THERE is no surer sign of a public utility's increasing place in the service and life of a community than the out-growing of office accommodations. Erecting a larger business home indicates an expanding organization personnel, which in turn is proof of a growing contact with the public. In this sense the unusually .complete .structure now housing the Pacific Gas and Electric Company's general offices in San Francisco may be regarded as symbolical of the public's growing confidence in and reliance upon western utilities.

Basement Parking Space

The basement will be utilized for the boiler and mechanical plant and for vaults. One novel feature is the basement parking space for company automobiles, entered by means of an inclined ramp from Beale Street.

Needless to say, the new Pacific Gas and Electric home is up to the minute in improvements. Six high-speed elevators, the first installation of their particular type to be made in San Francisco, are a part of the building equipment. In order to eliminate dust and street noises the offices on the front street are equipped with mechanical ventilation whereby the windows may be kept closed if desired. For certain of the floors where large undivided offices for accounting and drafting are situated, the entire area is mechanically ventilated, obviating drafts through open spaces.

Flood-Lighting

Latest equipment available for modern lighting has been installed. Flood-lighting will add to the building's attractiveness at night. Approximately 250,000 candle power of light will be thrown from large projectors located on the buildings across the street.

The communicating system will be both manual and automatically operated, in many instances eliminating the services of the telephone operator. Calls will be made direct.

Big Task in Excavation

In excavating for the new structure it was necessary to remove 18,000 cubic yards of material. Then came the pile driving for the foundation, work on which was commenced in August, 1923. Contractors for this work developed a jetting method, using the high pressure fire system of the city, by means of which the holes were washed through the hard strata into which the piles were subsequently driven. The nozzle of the jet was under 150 pounds pressure per

(Continued on Page 32)

Important Subjects *at* Oakland Convention

Associational Meeting of June 5 is well Attended. Home Service Manual, Model Gas Ordinance, Certification of Appliances Discussed. Informal Banquet Program Enjoyed

SITTINGS in the morning, appliances in the afternoon, food at night. That, perhaps, would be the best rough subdivision of the June 5th sectional meeting of the Pacific Coast Gas Association, held in Oakland. This meeting, the third of its kind during the year, was attended by well over 200 association members and others interested in the advancement of the industry that they serve.

Discuss Fittings

The engineers held the floor during the morning session, when the principle topic considered was that of the quality of fittings that are now being supplied to the companies by the various manufacturers, and what steps could be taken to improve this quality. And it was apparent from the discussion that resulted that there is ample room for improvement in this quarter.

The relative merits of black and galvanized fittings were also considered, the opinion of many being that sooner or later black fittings will come back into their own, as the galvanizing process apparently has proven to be merely a makeshift arrangement that covers up defects in this class of material until it is safely underground and out of sight, after which these defects show up and the resultant gas loss proceeds just the same.

R. S. Fuller, Engineer of Distribution for the Pacific Gas and Electric Company, led the discussion, after the meeting had been turned over to him by E. L. Hall, president of the association.

Home Service Manual

The new Home Service Manual, which has been occupying the attention of a committee headed by C. R. Miller of Portland, came up for a very thorough and comprehensive discussion in the afternoon session.

The manual is an ambitious project, in that it aims to be a complete and authoritative textbook on gas appliances, their installation, use and maintainance. Needless to say, any work that attempts to cover so large a field, and to fill such a universal need, is being watched very carefully by all manufacturers and distributors of gas appliances, as well as by all of the gas companies. For appliance men, as well as public service organizations, recognize that the gas industry must stand or fall on just one platform—the kind of service its product gives the consumer.

The necessity for a broad viewpoint was stressed by both President Hall and Committee Chairman Miller, when they pled for an open-minded attitude upon any technical points that might come up which would have a bearing on any one manufacturers product.

The entire attendance at this meeting went on record as being unanimously in favor of the Home Service Manual, although it was understood that the tentative draft is to be widely circulated among all interested parties who apply for it, and they will be requested to make written comment on it for the guidance of the committee, so that the finished product may be truly representative of the best opinions in the industry.

Model Ordinance

The subject of a Model Gas Ordinance was discussed at the same time as the Home Service Manual. It is recognized, of course, that no ordinance can be framed that will suit every locality, but it is the aim of the committee to provide what might be called a legislative skeleton, upon which the many municipalities may hang a Gas Installation Ordinance suitable to their local needs. The ordinance will probably be, more than anything else, a series of "shalt nots," to discourage the marketing of inferior and dangerous appliances, and to protect the bargain-loving public against the shoddy workmanship that its economy often leads it into.

The committee will proceed to round the ordinance out in the same manner as the Home Service Manual, through the use of written criticism to be supplied by members of the Association who are most competent to advise in such matters.

Appliance Certification

The Certification of Appliances is an integral part of any scheme that aims to promote the use of only recognized and trustworthy materials in domestic installations, and this subject was also considered. The best Manual in the world will be of little use, the members feel, if something is not done about the type of appliances that are to be sold. A clause will be inserted in the ordinance prohibiting the marketing of any appliances not certified by some recognized authority.

It is also recognized, and was discussed at length, that it will be no simple matter to establish and make effective an agency that can inspect and certify appliances, and at the same time keep free of any charge of commercial motive and political domination.

This problem was left in the hands of President Hall, with the expressed desire of the Association that he attempt to evolve some plan that can be made immediately effective, and which will be received with approval by all of the various elements of the organization.

Banquet Held

The third division of the days activities, and the one which probably attracted the heaviest attendance, was the informal banquet held in the dining room of the Oakland Business and Professional Women's Club.

Presiding was E. L. Hall, with L. F. Galbraith to introduce the various gifted entertainers who had been secured by the Oakland members of the Association.

Speakers

President Hall spoke briefly on the question of affiliating the Pacific Coast Gas Association with the American Gas Association, and indicated that the national organization has extended a most attractive invitation to the western body. He also reviewed the matters that had been discussed in the afternoon meeting.

Other speakers included F. J. Schafer, Los Angeles, vice-president of the P. C. G. A., C. B. Babcock, Clifford Johnstone, secretary of the Association, and W. S. Yard, who reported for the technical committee.

McCarter Medal Awards

An interesting and unusual feature of the banquet was the presentation of the McCarter medal for saving a life by the Schaffer method of resuscitation, to W. A. Bahr, O. L. Dickinson and J. E. Fields. Certificates awarded to those who assist in such an emergency were granted to Ray Kutter, Pete Saeti, Daniel A. Kirkpatrick, Horace Oftedal and Alfred E. Englebright.

Wiggington E. Creed, president of the Pacific Gas and Electric Company presented the medals and certificates, all of the recipients being employees of that company.

W. E. Creed Speaks

In a brief address incidental to the presentation Mr. Creed spoke on the new viewpoint of industry, which holds human life high and provides every precaution and regulation to safeguard the workers. He complimented the men

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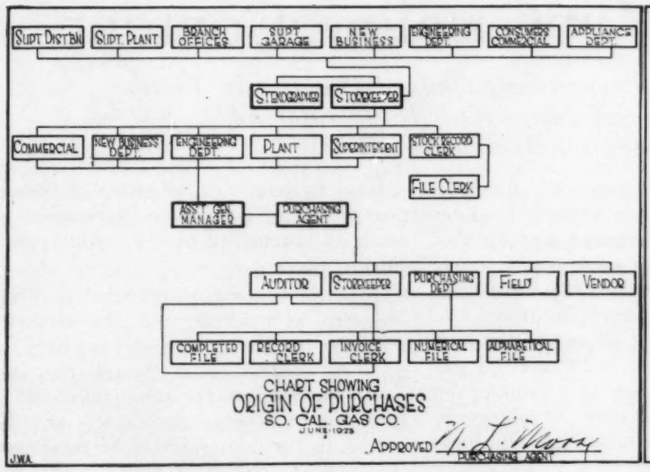
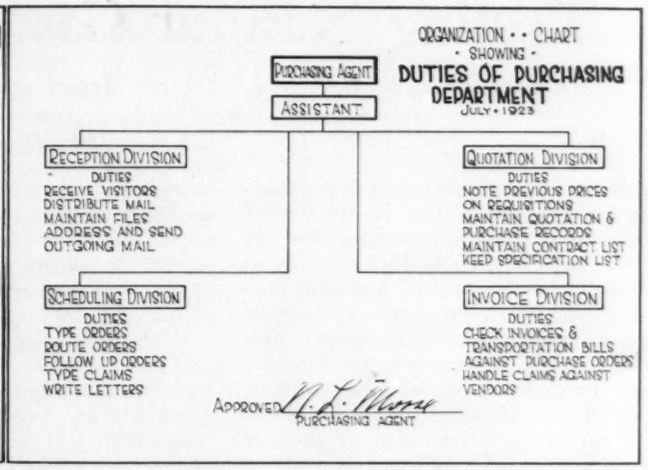




Public Utility Purchasing Activities

Purchasing Department is not only an Agency of Economy, but is also a Valuable Builder of Company Good-Will through its Contacts with the Public. Organization Described

By N. L. Morse

Purchasing Agent, Southern California Gas Company, Midway Gas Company

YEARS ago an American financier said that his experiences had taught him that spending money judiciously was a harder task than the acquisition of it. Public utilities were among the first to realize the truth of this fact, and to see the important part which centralized buying might play in the success of their enterprise.

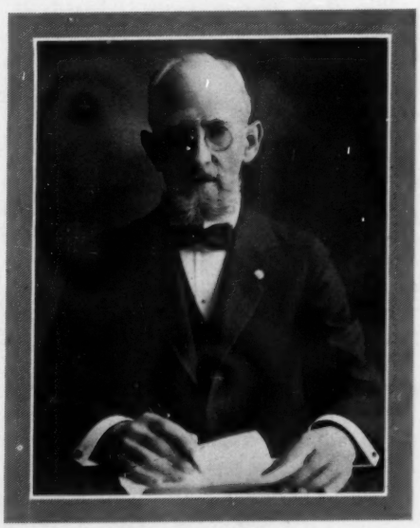
Savings Effected

A public utility, because of its very nature and purpose, has a service to sell, and it must supply such service at all times. The purchasing department must do its part to help produce that service and must make sure that the materials used are such that dependable service will be given and also must assure itself that they are obtained at the lowest possible cost consistent with quality. In this way the properly organized purchasing department of a public utility is not an added expense, but on the contrary the savings which it is able to make are definite earnings and will be reflected in lower rates to the customers as well as in satisfaction to the stockholders.

A Good-Will Builder

Further than this, the purchasing department of public utilities occupies a unique position, because it comes in contact with all other departments in its own organization and also has dealings with the commercial world to an extent only equaled by the customers' department. This affords an opportunity for building up "good will" for the company to a larger degree than is enjoyed by any other department, with the exception mentioned. If the purchasing department adopts the "open door" policy, treating all visitors with courtesy, promptness and fair dealing, it can not help but add to the good reputation of the utility it represents.

The actual work of the purchasing department is far less simple than some people imagine. If you can visualize a family of two thousand five hundred persons divided into groups, each group having a different problem to solve, each having a different kind of work to do, and each requiring different kinds of tools with which to do its work, you can form an idea as to what it means to have such material on hand, in proper quantities, at all times.



N. L. Morse

Distribution Is Big Task

We have found it necessary to carry in stock approximately twenty thousand different items in order to satisfy the needs of the various departments. Being sure of having these on hand is not enough; we must properly distribute them throughout our territory so as to have them available when and where needed. In addition to the Distribution Building at Tenth and Santa Fe Avenue, Los Angeles, the Southern California Gas Company maintains branch warehouses at Glendale, Redondo, San Bernardino, Santa Fe Springs and Taft. Most of the branch warehouses obtain their supplies from the central warehouse.

In order that the purchasing agent may intelligently operate, it is necessary for the closest co-operation to exist between the stores accounting division and the purchasing department. In the stores accounting division are to be kept all stores records of materials, reports in regard to quantities in the stock, records of the amounts used, and forecasts as to the amounts which will be used. These must be so accessible as to make it possible for the storekeeper and purchasing agent to have the proper flow of new materials coming as they are needed. The active stock is stored in adjustable steel bins on the first floor of the Distribution Building. Surplus and salvage stock is carried in the basement.

In the basement are also located ma-

(Continued on Page 26)

Testing Natural Gas *for* Gasoline Content

Beginning a Series of Three Articles Presenting Standard Practice in Testing for Gasoline by Compression and Cooling, Oil Absorption and Charcoal Absorption Methods

IN its infancy, the natural gas business comprised the production of natural gas from so-called dry gas wells and the transmission of same through pipe lines to the points of consumption. High pressure was essential and necessary, and therefore gas produced at low pressure was not desirable and in a large measure was not utilized.

With the subsequent decline of available well-pressure and a diminution of the supply of such high pressure gas, it became necessary to conserve and utilize all gas, irrespective of its available pressure and this led to the use of compressors and vacuum pumps in conjunction with transmission lines. It also brought about the conservation and use of so-called casinghead gas produced from oil wells.

With the introduction of compressors and the handling of casinghead gas came the development of the natural gasoline industry, as it was found that by the simple process of compressing and cooling certain natural gas, the by-product, gasoline, could be condensed and recovered. The early methods were rather crude, but the industry has developed rapidly, until today, it is of major importance.

It is thus that the natural gas industry became directly interested in natural gasoline recovery and was instrumental in its development.

In California, the bulk of natural gas is produced from oil wells as so-called casinghead gas, from which, generally speaking, gasoline may be recovered by proper method of treatment, and for this reason, the subject of natural gas recovery is of vital interest to the California natural gas and petroleum industry.

With the increasing importance of natural gasoline recovery in the natural gas business, as a valuable by-product, the Natural Gas Association of America, representative of the natural gas business in this country, undertook to formulate standard methods for the determination of the gasoline content of natural gas. This work was carried on under the direction of a gasoline committee made up of men from its own membership and members of other interested organizations, such as the United States Bureau of Mines, the United States Bureau of Standards, American Petroleum Institute, the Natural Gasoline Association and the American society for testing materials.

Western Men Serve

In recognition of the important position of California in the natural gasoline industry and the ability and achievement of its engineers, two of its men, R. E. Haylett of Los Angeles and G. H. Van Senden of Martinez, were appointed, and acted on this committee.

The report of the committee has been accepted by the Natural Gas Association, and has been recommended for use by the industry for trial. It is the intention to delay final adoption of the report until sufficient time has elapsed to establish the utility of the methods outlined.

It is therefore recommended that the industry, as a whole, use the outlined methods of testing natural gasoline for gasoline content, even though they use other methods at the same time. It is desirable to develop any defects or difficulties in the manipulation of these testing methods, and by so doing, eventually these reference systems of testing will become a standard of practice.

Any suggestions or criticisms which are developed by the use of the testing methods should be sent to either of the California members of the committee.

Western Gas will publish the complete report in three installments. The one appearing in the current issue contains general introductory material and also presents the committee's recommendations on standard practice in testing by the compression and cooling method. In the August number the oil absorption method will be given, and the September issue will review the charcoal absorption test method. Publication of the report, which follows, has been expressly authorized by the Natural Gas Association of America.

WILLIAM MOELLER, JR.
General Manager,
Midway Gas Company.

Report of the committee on standard testing for gasoline, adopted as a tentative standard for trial by the Natural Gas Association of America.

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General Introduction—Purpose

To establish in the industry definite standardized methods for testing natural gas, so planned that the quantities of condensed fluid extracted from a unit volume of natural gas by these specific tests will constitute a standard measure of reference useful for the following purposes:

(1) To determine the comparative richness in "gasoline" content of the gases from different localities;

(2) To afford a basis for estimating the probable yield of "gasoline" from any given gas; and,

(3) To form a basic measure for reference which may be used in comparing the daily performance of commercial "gasoline" extraction plants.

Procedure in Forming Standard Testing Methods

The three testing methods herein described have been worked out by the Gasoline Committee of the Natural Gas Association of America, and have been approved by the Association and adopted as a tentative standard for trial by the natural gas industry.

Through wide experience in use, any modification of the specific forms of apparatus or procedure described herein for each of the three test methods, will be developed.

Since these methods are in a formative state, the appellation, "Tentative Testing Methods" is authorized by the Association at this time as properly designating the status of these methods in the Association Code of Standards.

General Facts Concerning the Problem of Testing Natural Gas for "Gasoline" Content

The word "Gasoline" is a popular term, used in the trade to describe all of the mixtures of combustible liquids which may be extracted from natural gas.

Further than this, the word "Gasoline" is applied to all those finished products forming motor fuels.

Thus the word "Gasoline" has no specific meaning, that is to say, it does not designate any one combustible fluid.

In general, natural gas is composed of a mixture of fixed gases and the vapors of several substances normally liquids. These liquids are present in the gas mixture in the form of vapors.

The proportion which these vapors form of the whole natural gas mixture varies widely in different sections of the whole country. In most gases the gases in the mixture are:

Methane,	CH_4
Ethane,	C_2H_6
Propane,	C_3H_8
Butane,	C_4H_{10}

The vapors are:

Pentane,	C_5H_{12}
Hexane,	C_6H_{14}
Heptane,	C_7H_{16}
Octane,	C_8H_{18}

In the very "dry" natural gas sold in most cities and towns for fuel, the vapors form only a very small part of the natural gas mixture. But in the case of "wet" gases, such as that known as casing-head gas, the vapors form quite a large percentage of the gas mixture, in some cases as much as 40% by volume.

If any natural gas is subjected to pressure and at the same time is cooled, a certain part of the vapors contained by the gas will be condensed to liquid, and may be thus separated from the gas. The proportion of such liquid separated from the gas will depend upon the pressure, and the degree of cold to which the gas is subjected. Thus with high pressure and intense cold a much larger portion of the vapors will be separated, than when the pressure is low and the temperature high, but the mixed fluid from the various vapors which is obtained by high pressure and intense cold is much "wilder" and more volatile than the lesser quantity obtained by the low pressure and high temperature.

Now since the word "gasoline" as it is used today applies equally to either quality of fluid, it becomes apparent that when we speak of testing natural gas for "gasoline" content, we must at once define what kind of "gasoline" we refer to.

Furthermore, some commercial gasoline plants are so operated as to obtain very "wild" gasoline. Other plants, because of marketing conditions, only operate at low rates of recovery and produce a more stable product.

In testing natural gas without any reference to the quality of the product obtained in the test, and with varying forms of apparatus, much confusion has arisen in the industry by indefiniteness of all statements merely referring to a "Gasoline Content" which has not been definitely defined.

From the nature of the problem described in the foregoing paragraph, the Association puts forward these three methods of testing natural gas, to be used in a fixed and definite manner under all circumstances, and when examining all qualities of natural gas.

Each test method consists of a fixed form of apparatus, operated always in one particular manner, the results of which test are stated as a quantity of fluid per one million cu. ft. of gas. *The results are not stated as "gasoline"* but as "natural gas condensate." More "gasoline" of varying degrees of volatility might be extracted under certain conditions from the same quantity of gas, but by eventually standardizing the test methods, the results obtained by such test methods may always be used as a reference of the comparative richness of the various gases, and experience with a definite test method will also enable the engineer to draw reliable conclusions as to the amount of more volatile fluids which may be extracted from the gas.

The Three Testing Methods

The three tentative testing methods have been adopted by the Association because the principles of each method are used in commercial plants extracting "gasoline" fluids from natural gas.

The apparatus for each form of test has been fixed upon after much careful study by the Committee to meet the following requirements:

(1) Simplicity of design, which makes possible concordant results in the hands of operators, and also tends to economy in costs; and,

(2) Reliability and performance, so that the working of the apparatus itself will be regular and introduce no errors.

The method prescribed to be followed in operating each form of test was fixed by the Committee for the purpose of meeting the following requirements:

(1) Duplication of results. To this end pressure, temperature, and rates of operation, have been chosen in each case so that the operator can easily obtain the conditions in the test, and can continue to hold same throughout the test; and,

(2) Simplicity of performance. To this end the methods of manipulation have been made simple and direct, and the results of the test are measured at the temperatures and pressures set out in the test method.

Compression and Cooling Test Method

Foreword—The Apparatus and Procedure herein described for the Compression and Cooling Test Method were adopted by the Gasoline Committee after much study and experimentation. Necessarily choice had to be made between various alternate forms of apparatus, and steps in procedure. Should experience in general use throughout the industry develop facts which would make any changes or modifications in apparatus or procedure advisable, such changes will be made by the Committee before this Test Method is adopted as a standard by the Natural Gas Association of America.

Criticisms and constructive suggestions covering the apparatus and procedure of this Compression and Cooling Test Method will be appreciated and given careful consideration and study by the Gasoline Committee.

Correspondence should be addressed to Mr. Wm. B. Way, General Secretary, The Natural Gas Association of America, Pittsburgh, Pa.

1. Apparatus

(Refer to Diagram No. 1)

A. *Vacuum Pump*

It is very essential that the vacuum

(Continued on Page 36)

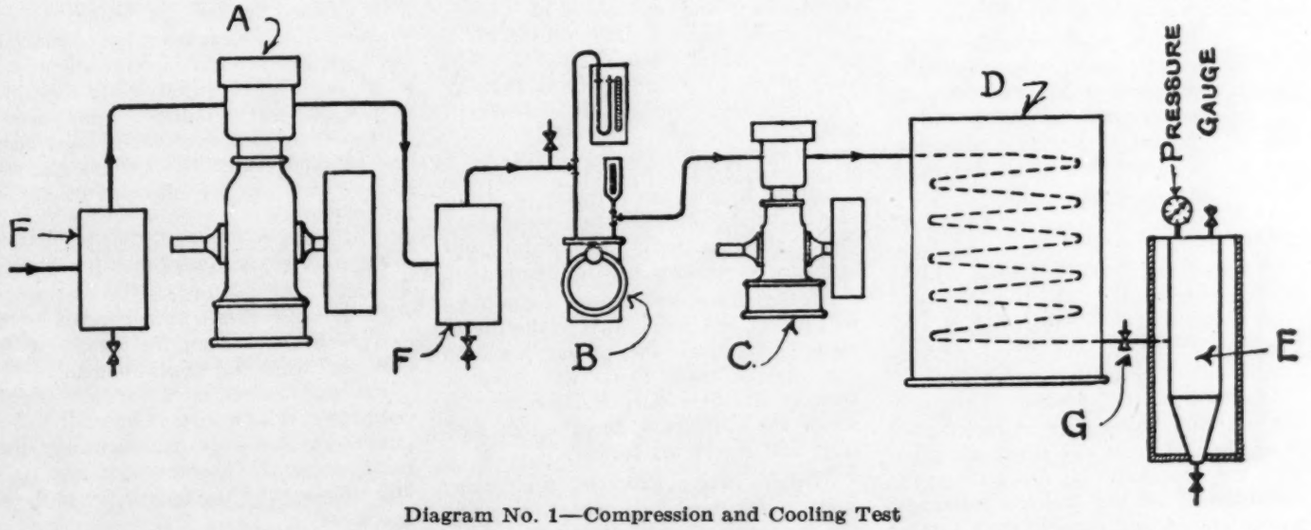


Diagram No. 1—Compression and Cooling Test

PACIFIC COAST GAS ASSOCIATION

Convention Plans *are* Nearing Final Completion

FROM Vancouver to San Diego, from the Golden Gate to Denver, the right honorable profession of gasmen is preparing for that big event of the year—the convention of the Pacific Coast Gas Association. And what a convention it will be! Portland in August, with all that implies in the way of weather. The Columbia River Highway, Mount Hood, Multnomah Hotel service and all the rest of it to be enjoyed and reveled in. Old friends, whom we have not seen since Santa Barbara or perhaps not since we were in Portland in 1920. Shop talk—we do it this way—how do you do it? The committee reports and papers—solid information. The discussions—the joy of contributing something of our own. The drives—golf—the night sessions in the "committee rooms." I wonder if Yakima will be on deck? Some convention! Will I be there? You bet I will!

Big Scale Preparations

It really will be "some convention." Under the able leadership of George L. Myers the boys of the Portland Gas & Coke Company and the Pacific Power and Light have been working for months to perfect an entertainment program which will leave nothing to be desired. Two hundred men, who have been working in an organization comprising some fifty committees on research, operating and business problems and their reports, besides contributing some brand new dope, will give us the latest information on what the "best people" are doing toward solving those old problems that have been worrying us for years.

Outline of Program

It is too early, as this is written, to publish a complete program of the business sessions, but the following outline will be sufficient to permit a visualization of its importance to all gas men:

Monday, August 17

The morning of Monday, August 17 will be devoted to registration and getting settled and the first session will be held that afternoon. This will be a general business session, featured by the President's address. Among other things which will come up for action and discussion will be the adoption of the new constitution which was proposed last year; the matter of our closer affiliation with the American Gas Association; the endorsement of the skeleton municipal gas ordinance, and possibly some further discussion of the temporary certification of safe gas appliances. Three or four papers have been prepared dealing with subjects of such wide and universal interest that everyone should have an opportunity to hear them. If time is available one of these will be read at the first business session and the others at a similar session which will conclude the convention on Friday.

Vacation Day

If the recommendations of the Arrangements Committee are approved, Wednesday will be vacation day, devoted to drives, sightseeing, golf and sports. Portland men are inclined to be proud of the scenic setting of their city and the word has gone out that Californians are to be shown some real scenery. Tuesday and Thursday are to be devoted to the delivery and discussion of reports and papers, while Friday, except for a brief final business session, will be given over to the Public Relations Section. The program of the various sections will be about as follows:

Transportation Arrangements for Convention

SPECIAL cars leaving Los Angeles and San Francisco have been reserved for those planning to attend the Portland Convention. The Los Angeles car, reserved on the Padre, leaves at 7:45 Friday evening, August 14, and a second car will be added if the first is filled to capacity.

Two cars have been reserved on the Oregonian, leaving San Francisco at 11:40 p. m., August 15, and all those going north from California should ask for space in these cars. The Oregonian reaches Portland at 7:15 a. m. Monday, August 17.

TECHNICAL SECTION

Owing to the vast amount of detail studied by Technical Section committees during the year, four full half days will probably be required for its presentation.

Meter Bureau: Three committees will report, discussing in turn the life of meter diaphrams, the proper handling and care of meters, and the value of keeping up meter statistical information as an aid to keeping down meter shop costs and meter investment.

Manufacturing Processes Bureau: Four committees will report, covering the four general methods of gas manufacture in vogue on the Pacific Coast. An effort has been made to make this study from an economic viewpoint, which is especially pertinent in this era of rising fuel cost.

Refractories Bureau: This bureau comprises three committees, but owing to the fact that certain tests and research have not been completed, it may be that only a progress report can be submitted. There will, however, be a paper on refractories presented by the California Gas Research Council.

Distribution Bureau: There will be three excellent reports covering unaccounted—for gas, Pige Protection, and certain phases of high pressure distribution. In addition there will be a progress report from the Materials Committee. There will also be a paper describing some interesting holder construction.

Purification Bureau: There will be four reports covering both oxide and liquid purification, tar and lampblack handling, and naphthaline removal. Some new and important applications are brought out and these reports will be a valuable contribution to gas industry literature.

Natural Gas Bureau: Two committees will report on their mathematical and physical research on pipe line capacities and gas measurements under high pressure.

Safety Bureau: This bureau will present a comprehensive set of safety rules for use by gas companies in instructing employees.

California Gas Research Council: The Council, under the leadership of Walter Berry, its engineer, has continued the high character of its investigations which made its contributions to the convention last year so notable. Four papers are expected, one on refractory materials, one on pipe protection, one on gas reforming and one on improved oil spray for generators.

ACCOUNTING SECTION

Customers Bookkeeping Bureau: Through four committees the routine of the customers office will be covered from every angle and from the viewpoint of both the large and small company.

Purchasing and Stores Bureau: Four committees will report. One will cover purchasing, another warehousing, the third, perpetual inventories of materials and supplies and the fourth the physical inventory.

(Continued on Page 30)

Natural Gas *as an* Agricultural Asset

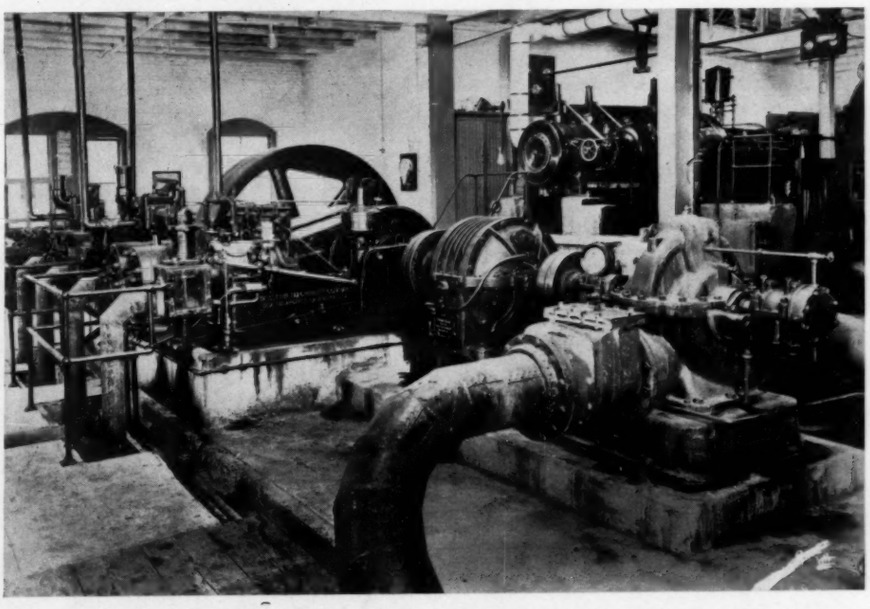
Effective Development of Internal Combustion Engine Places Economical Fuel within Reach of Irrigators. Gas Use is Steadily Increasing

By Charles L. Ferry
Power Engineer, Southern Counties Gas Company

NATURAL gas, in addition to playing a tremendous part in the development of industry, is finding an increasingly important place in the agricultural field as an economical fuel for developing cheap water. The Southern Counties Gas Company, with natural gas mains extending through hundreds of miles of rich agricultural territory, can testify to the favorable reception natural gas is experiencing from both industrial and agricultural users throughout Southern California.

A Desirable Load

A chart showing the hourly sendout for the Southern Counties system for the peak day compared with that of a typical summer day, shows the effect of the industrial business in flattening the summer daily curve. This summer industrial business is very desirable operating under conditions that exist in Southern California, and the agriculturists who are so fortunate as to be located within reach of a natural gas main, are equally eager to take advantage of this wonderful natural resource for power purposes.



View showing several hundred H.P. pumping water for domestic and irrigation use, using natural gas for fuel.

Coupled with the abundance and low cost of natural gas, is the present high development of the internal combustion engine that makes natural gas so valuable to Southern California, enabling the power users to utilize this low cost gas in a very efficient way. The superiority of natural gas as a source of power places it in a position where as yet it has no rival. Perfection of equipment for the use of gas as a power producer together with improved methods of distribution, has made natural gas more convenient and economical than ever before.

Trend is Towards Gas

In fact, as we review the last few years continuous growth of gas engine installations throughout the territory, we feel that there is a trend of evidence pointing toward a cycle of internal combustion engine use, supplanting the same cycle of common use enjoyed for a few years by other sources of power, almost exclusively. Growth of the gas industry has been steady and consistent. Its greatest strides, both in volume and invested capital, have been attained in but a few years. Natural gas use is becoming more general as an economic factor in the power field, this economic success being limited in its expansion only by the growth of industry.

We do not think it necessary to elaborate on the necessity of cheap power for agricultural purposes, as the chief topic of conversation among the irrigators is, "What is the cost?" A large percentage of the internal combustion engines are used pumping water, for farmers as well as manufacturers are striving to keep costs down, and many thousands of H. P. of natural gas engines are consistently saving them thousands of dollars every year.

10,000 H. P. a Year

In the past few years there has been installed in this territory about 10,000 H. P. per year for irrigation use alone and all indications are that the next few years will show a similar or greater development in the use of natural gas engines.

It is conceded by everyone, even the gas engine manufacturers, that so far as operation is concerned, there are other sources of power available that may be simpler to operate. Why then are there so many natural gas engines installed? The answer is simple, "Economy". We find that in actual practice gas costs about one-third as much as other sources of energy, depending upon the load factor or operating conditions of the plant. Inasmuch as one of the big items of expense in agriculture is the energy charge for pumping, the agriculturist is quick to take advantage of cheap power when available.

A Testimonial

In this regard I will quote from an annual statement of a mutual water company in this district for 1924 as follows:

"There were eight natural gas engines installed in the past year. The total cost of installing these engines was $24,-246.98. Making a fair estimate between gas and power previously used we find that we made a net saving of approximately $14,325.00 by using gas engines the past year. We now have a total of $56,118.02 invested in gas engines. From the time we installed our first gas engine, which was October 1921, we have made a net saving of approximately $30,400.00 by using gas engines instead of our previous source of power".

Reliable Service Vital

An item that is even more important than economy is without doubt the matter of reliability of service, for unless continuous or dependable service can be obtained, economy is of no value. An internal combustion engine user has never been forced to shut down owing to an inadequate supply of gas on the Southern Counties lines, which is a convincing example of dependability. To increase the efficiency of its service; the company

(Continued on Page 30)

EDITORIAL

An Old Complaint

A LONDON expert figures that each factory chimney in that city (where coal, wood, oil, refuse, etc., are used as fuel) emits 45 tons of dirt a year.

That all this dirt finds its way into the lungs, the homes and the persons of the people—to be coughed up, scrubbed out or swept into the streets, to be used over and over again—causing sickness, expense, labor, annoyance, damage and what not, is admitted.

It would seem that with an expert opinion of this kind the authorities of London (as well as of other cities similarly situated) would insist upon the use of gas, the cleanest of fuels.

This appeal for a clean fuel is not a new one. The following lament concerning the "Big Smoke", as London is still often called, was written in 1820.

November Fog. (London, England.) (1820.)

First, at the dawn of lingering day,
It rises of an ashy gray;
Then deepening with a sordid stain
Of yellow, like a lion's mane:
Vapour importunate and dense,
It wars at once with every sense.
The ears escape not. All around
Returns a dull unwonted sound.
Loath to stand still, afraid to stir,
The chilled and puzzled passenger,
Oft blundering from the pavement, fails
To feel his way along the rails;
Or at the crossings, in the roll
Of every carriage dreads the pole.
Scarce an eclipse, with pall so dun,
Blots from the face of heaven the sun.
But soon a thicker, darker cloak
Wraps all the town, behold, in smoke
Which steam-compelling trade disgorges
From all her furnaces and forges
In pitchy clouds, too dense to rise,
Descends rejected from the skies;
Till struggling day, extinguished quite,
At noon gives place to candle-light.

O chemistry, attractive maid,
Descend ,in pity, to our aid:
Come with thy all-pervading gases,
Thy crucibles, retorts, and glasses,
Thy fearful energies and wonders,
Thy dazzling lights and mimic thunders;
Let Carbon in thy train be seen,
Dark Azote and Fair Oxygen.
And Wallaston and Davy guide
The car that bears thee at thy side.
If any power can, any how,
Abate these nuisances, tis thou;
And see, to aid thee, in the blow,
The bill of Michael Angelo;
Oh join—success a thing of course is—
Thy heavenly to his mortal forces;
Make all chimneys chew the cud
Like hungry cows, as chimneys should!
And since tis only smoke we draw
Within our lungs at common law,
Into their thirsty tubes be sent
Fresh, air, by act of parliament.

—Henry Luttrell (1765-1851.)

What Increased Population Means

THE statement made by Mr. W. E. Creed, president of the Pacific Gas and Electric Company, that the population of California thirty years hence would be between 25,000,000 and 30,000,000, is deserving of more than passing notice. Not only California but other Western States will experience marked growth in population, development, resources, expenditures, etc., as the waste lands become irrigated, the water powers utilized and the many hidden resources of mines, soil and climate become known. This means greater problems than ever for public utility executives to meet and solve; It means the scrapping of many old plants and of many old ideas. It is the opportunity for men of vision; for the inventor; but most of all for the young man, working his way up in public utility service, to fit himself for the bigger problems of twenty to thirty years hence.

Utility Investments Popular

DURING the first four months of this year, as disclosed by a statement of H. C. Abell, president of the American Gas Association, the American people had invested their savings in the securities of public service companies to the amount of $611,000,000.00 new money, or at the rate of $3,500.00 a minute, Sundays and holidays included. It is the best indication in the world that the public utilities of this country are in capable hands; also that all the money of the country is not being used to buy automobiles.

Increasing Use of Gas

IN his monthly report of the business outlook of the United States, dated June 11, Mr. J. C. Royle of the Consolidated Press Association has this to say of the gas industry: "More gas and electricity is being produced and used in this country at present than ever before at this time of year. The demand for heat and power is insistent and the program of expansion of gas and electric plants will undoubtedly continue unchecked throughout the summer months. The public utilities in general (with the possible exception of tractions) are making fine profits."

The Indeterminate Franchise

A VERY able article in our June issue by Mr. John A. Laing, Vice-President and General Attorney of the Portland Gas and Coke Company, advocating the indeterminate permit or franchise for public utilities has occasioned considerable discussion among our western readers. There is no subject of greater vital interest to the public from the standpoint of stabilizing its public utility investments (for it must be admitted that the public is largely concerned in its public utilities); and when it is realized that under the present system franchises terminate and become worthless, possibly because of some local political upheaval or personal jealousies, the seriousness of the matter will be apparent. To make these franchises or permits indeterminate—or during "good behavior"—that is so long as the licensee observes the laws and carries out the contractual provisions, is the plan advocated by Mr. Laing. If you have not read the article we advise that you refer to your June copy of *Western Gas,* page 13, and give it careful study. It is both interesting and timely, as well as highly instructive.

Gas Solves *another* Industrial Problem

Use of Gas Prevents Explosions formerly Occurring in Pulverizing Sulphur on World's Largest Vineyard. Increasing Demand for Gas in Industry being Met by Gas Engineers

By Lee Holtz
Combustion Engineer, Southern California Gas Company

THE largest vineyard in the world, owned and operated under government control by the Italian Vineyard Company ,is located in a fertile valley at Guasti, south of the junction of the San Bernardino and San Gabriel mountains.

Here are five thousand acres of grape vines, from which a million gallons of Kosher wine are made each year for sacramental purposes. To keep the plants in a healthy condition, it is necessary to spray them, during about eight months of the year, with pulverized sulphur. This eliminates fungus and fertilizes the soil. Such spraying requires approximately one ton of sulphur an hour, or eight tons a day. Because the sulphur, when received, is quite coarse and lumpy, it is necessary to pulverize it after it reaches the vineyard.

Explosion Hazard

Pulverizing sulphur is a highly explosive process and it is therefore quite hazardous. Not only does it require a carefully designed grinding machine, but also the internal atmosphere in the receiving hopper must be closely adjusted. The Bureau of Mines is responsible for the statement that sulphur dust cannot be exploded in an atmosphere containing nine per cent, or less, of oxygen.

Recently a new machine was purchased by the Italian Vineyard Company from the Raymond Brothers Impact Pulverizing Company. This new machine was designed with the idea of eliminating the danger of explosion. The machines in use up to this time were equipped with wrought iron hammers, and were so made that, because of the infiltration of air in feeding the machines, one, and often two, explosions occurred in a day. These were not, however, violent enough to wreck the machine itself, but were severe enough to completely destroy the twenty-four gauge sheet-iron delivery pipes to the receiving hoppers where the sacks are filled prior to hauling to the field. This not only constituted a constant danger to the workmen but involved much loss of time and material.

Gas Solves Problem

Before the new machines could be guaranteed against explosion, it became necessary to devise a method whereby the internal atmosphere of the machine would contain less than nine per cent of free oxygen. Owing to the construction of the feed, it was impossible to prevent infiltration of air. It was here that gas entered as the successful agent to furnish the necessary inert gases to so dilute the air as to keep the free oxygen below the danger point. The process is considered quite unusual in its simplicity, economy, and convenience.

Furnace Described

A brick furnace was constructed one hundred and fifty feet from the grinding machine. The fire box, measuring three feet by three feet by four feet, inside dimensions, was built of fire brick and was kept independent of the outer walls of the furnace to allow for contraction and expansion, so preventing checking and cracking. This precaution was considered highly important as the desire was to allow only sufficient air to enter the furnace for complete combustion, and this amount of air was taken in through the air mixers by two two-inch Perfection Burners.

About twenty-eight inches from the floor of the furnace, or the top of the fire box, a fire brick arch was made, leaving a twelve-inch opening in the back of the furnace. About thirty inches from the front of the furnace a fire brick checker-wall was placed. Its object was to support combustion by breaking up the flame and maintaining an incandescent zone. The products of the flame were carried to the back of the fire box up the twelve-inch opening, back over the fire box and out of a ten-inch flue opening, located on top and at the front of the furnace. Thence it led through one hundred and fifty feet of ten-inch galvanized pipe to the grinding machine. All pipe joints were sealed with "Hytemite", the object of this being to have the joints sealed with something better than solder.

There are two reasons for placing the furnace at this great distance from the grinding machine: First, owing to the low ignition temperature of sulphur, it was thought best to keep the gas temperature entering the machine at one hundred five degrees Fahrenheit, or less; second, that all condensation could be taken care of in the bustle pipe. This condensation was taken care of by placing two water-sealed drips in the line, one located where the gas temperature was less than two hundred degrees, the other at the machine, where it would catch the moisture which might be drawn over by the velocity of the gas. The main drip, which was located about ninety feet from the furnace, was about fifteen inches lower than the openings of the pipe at the furnace and the machines. This provided a drain both ways.

Oxygen Content Lessened

The inert gases from the furnace are mixed with air so that the oxygen content will be less than nine per cent, and

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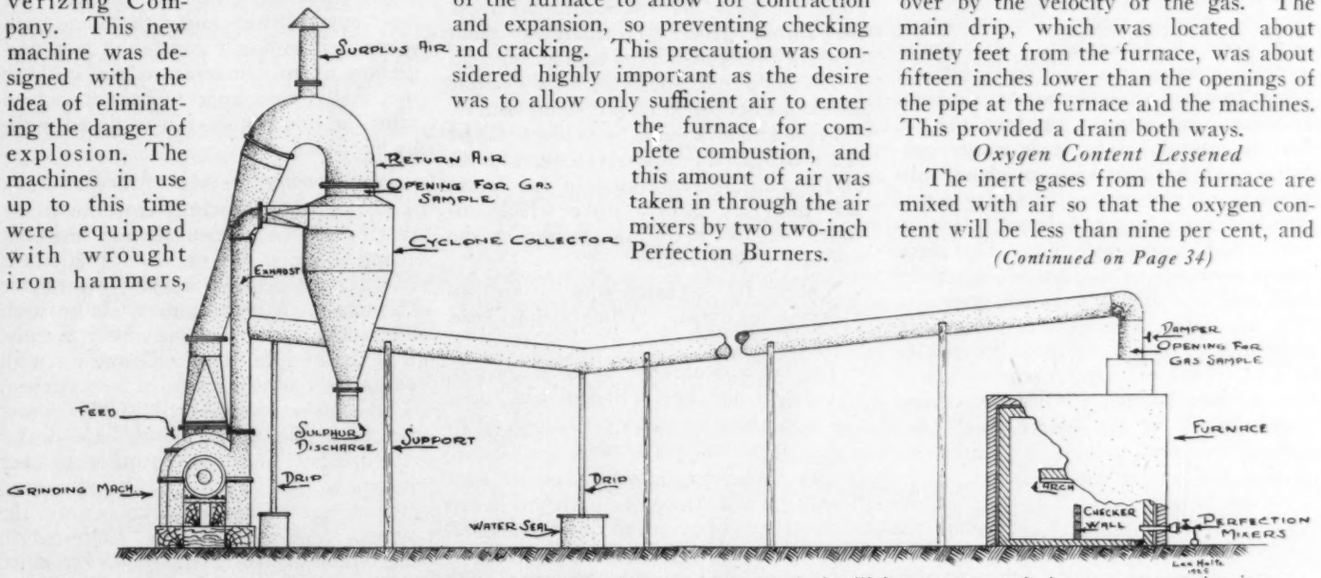

Diagram of sulphur-pulverizing machine at Guasti, California, showing method of utilizing gas to supply inert gases to pulverizer

What Women Want *in the* New Gas Range

Women Buyers Have Definite Likes and Dislikes in Gas Range Features, Says Home Economics Authority. Buyers Analyzed

By KATE BREW VAUGHN

Director Home Economics Department, Evening Express, Los Angeles

THE present generation does not remember cooking with wood; very few have in the larger cities at least done work with coal stoves. Even the poor, cheaply-constructed gas range was so far in advance of the wood, coal and oil methods of cooking that there is no comparison.

As her interest in housekeeping and particularly cooking grows, the modern housewife will be apt to want an improved gas range, just as her husband will, if at all progressive, want modern office equipment and insist upon getting from time to time a better and more modern automobile. As the husband's income increases his selection in automobiles will be for higher powered machines. Even so should the kitchen reflect an increased family income. The kitchen is the hub of the home—most important in creating harmony and producing human efficiency, and there is here, if anywhere, a need for efficient equipment. Gone, then, is the time when the old family range lasted through one generation, being used while it was still intact and could be heated, even though the oven linings were thin or worn, and the model was antique.

Minds of Their Own

The woman of to-day is just as far seeming as the business man, though she may not talk so much about it. Her kitchen range is to her very much what the automobile or office equipment is to the husband; it is the medium through which her work is dispatched. She wants something which not only cooks but she wants freedom while doing that cooking. Standing over a stove watching the pot boil is antique. The cook wants confidence in her working machine. In other words the woman of to-day wants the best in stoves and heating devices which her money will buy. She shops about well before she decides what she will buy and she expects her choice to live up to the specifications and recommendation of the seller. No dealer should try to sell a gas range to one of the modern women without explaining carefully all of its salient points and taking care that nothing is claimed for it that will not be acomplished.

I am not in the selling line of the gas stove industry, but I am selling the proper methods of using gas stoves to the thousands of women wha came to my department in the Evening Express for information and special training in various subjects of cookery. I find that when the old stove at home gets out of order, and too many foods are being sacrifice on the alter of economy (as the housewife views clinging to the old stove until it has no more work in it) she begins to look about for a new stove. I think we can safely divide the prospective gas stove purchasers into three divisions, namely:

Three Types of Buyers

First, the woman who seeks something to cook on—the one who fries and boils but buys her cakes and bread at the corner grocery, considering them superior products. This woman buys on *price* and is not interested in the latest developments of the gas manfacturer.

Second, the woman who does all of her cooking; she bakes, yet must think of the cost of everything in her house and therefore buys a stove which answers best her needs for the money she can afford to spend.

Third, the woman who is not influenced by cost. Under this head come:

(a) The woman who has a servant, a big fine kitchen and buys what her dealer suggests after hearing her needs.

(b) The woman who does her own work, has a pretty kitchen furnished in the best materials throughout, and takes an interest in her cooking even though she may not do all of the baking.

(c) The woman who is interested in the best and most scientific apparatus and wants to know the temperature and length of time for each particular thing which she prepares. She is also interested in the appearance of things and will sacrifice something to have a good looking range, but she demands a good oven and oven control.

IT can probably be said in all respect for facts that women are the controlling factor influencing 99 out of every 100 sales of gas ranges—perhaps the proportion should be placed higher. The article appearing on this page, written from a woman's viewpoint and coming as it does from one who meets prospective range buyers every day and knows their reactions to present lines of merchandise, should carry a message to every dealer and manufacturer who reads it.

Origin of Oven Control

One of the latest generally accepted conveniences which we note on gas ranges of the better type is the apparatus for measuring temperature in the oven, and this convenience is called oven control. There are several types, all of them accomplishing in their own way the same work. Up to the time of the oven control, much of the baking and roasting was done by guess work. In 1910 two teachers of the teachers' college at Columbia University, after extensive tests with thermometers placed in ovens by means of a hole drilled in the top of the oven, and the baking of much materials of different types, placed in the hands of the student of Home Economics a little pamphlet which was called "Some Attempts to Standardize Oven Temperatures." A chemist knows to an exact degree the materials and temperatures with which he produces other chemical combinations, but the most important chemist—the home cook—was left in doubt and found in a suggestion as to temperature for cooking the really first important contribution after the first gas stove was placed within her reach.

Enamel Ranges Appeal

Of course any manufacturer will say that he wishes women did not insist on enamel ranges, but to this fact alone is due a great deal of the yearly turnover of ranges. A woman may put up with a cranky stove; but not many women with up-to-date ideas will put up with a shabby looking range in her kitchen. The woman thinks well of this white range, so the manufacturer and dealer may just as well get enthusiastic over it too.

The same woman who wants the white range will also be interested in the smooth cornered easily cleaned

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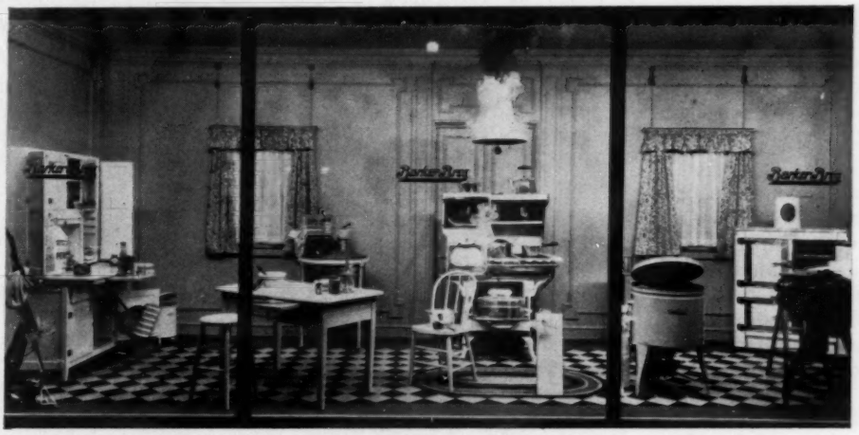
Can Better Ranges *be* Sold *at a* Profit?

The Answer is "Yes", as Demonstrated in the Experience of Barker Bros., Los Angeles. No "Sales" are Needed to Merchandise Quality Ranges

By A. D. Smith
Director of Publicity, Barker Bros., Los Angeles

WHEN business is good it is a pretty safe guess that the average furniture dealer becomes a little careless, takes things more or less as a matter of fact, and is quite likely to neglect some of the business-getting possibilities which in more quiet times he would be apt to more aggressively develop. When business is dull, on the other hand, the average dealea today is more likely to resort to special sale activities in order to stir up business than he is to actually give the subject intelligent study and promote business more scientifically and, we might add, more profitably.



A Barker Bros. "June Bride" Window in Which the Gas Range Is an Important Factor.

However, the trade is beginning to appreciate the fact that business provement depends upon profitable business development in which a demand is created for better merchandise, rather than merchandise at a price, and this theory applies particularly to some of the most staple divisions of the retail furniture industry.

Range Business Is Staple

There is no more staple branch of retail furniture business than the gas range branch. The gas range is one of the fundamental factors which enters into the furnishings of every home. Likewise, upon the efficiency of the gas range depends the successful and economical carrying on of a very important part of home management. Moreover, the difference between a poor, inefficient, out-of-date gas range, and one which is today's latest standard with oven heat control, white enamel finish, and all of the other improvements, means a great deal to the housewife in the pleasure, saving of time and labor and in the satisfaction, which she derives in one of her household duties which has so much to do with the health of the family and her own activities.

Sell Better Ranges

In the development of a demand upon the part of the public for better gas ranges lies the secret of more profitable gas range business. Many firms are arriving at this conclusion, and not a few campaigns have been engaged in by different alert firms in this direction. Perhaps one of the most noteworthy is one which has been recently carried on by Barker Bros. of Los Angeles. This firm, as is well known, has been a great exponent of the Better Homes idea, and has consistently carried on promotional efforts with the Better Home theme as a dominant factor in their advertising for many years.

In preparing their gas range campaign, which ran through a number of months during the past year, one dominant aim was to increase the average price paid by the customer. Not only was it the aim to create a large increased volume of sales, but also to create these sales for better ranges at better than average prices, and without resorting to a reduced priced or "sale" basis.

Latest Type Featured

Therefore, it was decided to select a type of range up to the minute in attractiveness of appearance, improvements and conveniences, which would make a fitting addition to a "kitchen beautiful." The "kitchen beautiful" was one of the elements of appeal specially stressed. A range with an oven large enough to take the largest roaster was another item.

It was not lost sight of in preparing for this campaign, that while the price must be somewhat higher than the amount paid by the average buyer, at the same time the cost wholesale must be such as would permit a reasonable markup. In this connection, dealers are learning that gas ranges cannot profitably be sold on a close margin basis, and particularly the finer grades of stoves which should carry a higher percentage of markup to cover the additional risk in handling. In developing Barker Bros. campaign it was carried out on a basis sufficiently extensive to characterize it as a feature event, and yet it was not referred to as a "sale." It was planned also on a basis of liberal introductory space, with consistent follow-up space, and over sufficient time to capitalize as fully as possible, those prospects who were awakened by the introductory appeal but who required several reminders before being converted into actual buyers.

Sound Trade-in Policy

A moderate down payment was made available, and those who had ranges to trade in were taken care of, and a reasonable replacement allowance was offered for the old range. This trade-in allowance was kept within reasonable limits, so that the used range could be serviced, and sold, in most cases, even at a slight increase over the allowance basis, to cover handling.

The Real Appeal

Today the appeal of merchandise, merely as merchandise, is recognized by up-to-date merchants as a thing of the past. Today, it is not mere furniture, but the Better Homes appeal that makes the profitable impression. It is not a table and so many chairs, or a bed and a dresser, or a rocker, or a refrigerator, or a stove, that have an appeal, but it is what these articles will contribute in comfort, convenience, beauty, happiness and contentment, that arouses the desire for better things.

The housewife is not so much concerned in what the gas range is made of, what kind of steel or cast iron has been used, but rather with its cooking efficiency, its compactness, and its ease of

(Continued on Page 36)

The Need *for* Aggressive Summer Selling

Experience of Pacific Gas Radiator Company Indicates that Fall Rush Demand for Large House Heating Installations May be Anticipated

By George H. Finley

WE'LL call our little drama "The First Snap of Fall," or "The Cold Rush of 1925." The time, as the title shows, is early fall, two months from present writing—the morning of a snappy late-September day.

The scene is set in Expanso, a typical, fast-growing city of the west.

Act I—Scene I

The curtain rises on a scene of deplorable confusion. Back and forth in front of his desk Mr. Shortsight, a leading retailer of large gas-fired house-heating units, paces his office floor—a harried personification of perplexity. Through a glass partition at one side of the office set may be seen a line of equally harried householders seeking admittance.

Three office assistants are carrying on telephone conversations. (There would have been more calls of the same nature if the office had had more than three lines.) As the much-beset merchant turns to his desk to thumb over a mounting pile of rush orders for furnace and radiator installations the phone conversations become audible.

Assistant No. 1: "No, madam, we can't do anything for you. . . . . No, we're not short of furnaces; we have just what you need, but we can't install it. There are half a hundred orders ahead of you and our service men are all . . . ."

Assistant No. 2: ". . . . . terribly sorry, . . . "Yes, we'll take your name, but we can't promise to get to you until late next month."

Assistant No. 3: ". . . . could have installed it early this summer for you, but we're tied up tighter than a drum now. It will take a week to change over your oil burners and we can't spare a man for even a half-day."

Mr. Shortsight glares balefully at the unoffending phones, then siezes the nearest, rings the corner drug store and orders some 10-grain asperin tablets for immediate delivery.

It seems that our drama has turned out to be a problem play, and the problems around which it revolves is important enough to engage the attention of every dealer in large domestic, gas-heating installations.

Lost Business

This familiar seasonal problem arises because everyone, retailer and purchaser alike, waits until the heating season is hard at hand—or fully arrived—and with the over-night demand that invariably follows the first cold snap it becomes a physical impossibility to serve the volume of prospects demanding attention. The result is that those who can, delay; those who can't delay substitute, and either alternative means a loss of gas business.

It may be admitted at the outset that this problem, like the poor, will be with us always, but it need not be present to as oppressive a degree as in the past. At least such is the opinion of C. O. Menig, secretary of the Pacific Gas Radiator Company of Los Angeles, manufacturers and retailers of radiator and furnace units.

SUMMER is with us now, but the gas appliance dealer well knows that fall, with its cold weather congestion of orders, is not far away. The retailer of the larger types of house-heating installations, in particular, can profit from the experiences of the Pacific Gas Radiator Company in adopting an aggressive policy of summer selling. It is an easy matter to sit supinely by, on the assumption that because gas appliances always have been sold during fall and winter they always must be, but it doesn't solve the rush-order problem of the cold weather season.

A seasonal demand is experienced in many lines of merchandising, but while the clothier can unload bathing suits, Palm Beaches and white flannels in July and count on a good overcoat business for winter, the gas appliance dealer has no such flexible line. He sells heat, and heating means winter to John Buyer. So the gas appliance dealer has in the main accepted his lot, and, in the case of portable appliances, has come pretty close to meeting seasonal demands—by stretching ing sales and service organizations to the elastic limit.

A big fall volume will always face the dealer in portable appliances, and he can meet it. But the dealer who markets a larger heating unit, especially those of a type requiring installtion of a vent to carry off the products of combustion, has a more serious situation to confront.

Revamping an oil or coal system to use gas demands the service of an expert worker. To make a satisfactory and sightly job he must be something of a carpenter, a woodfinisher, and an all round mechanic, as well as a plasterer and wallpaperer. It isn't economical, says Mr. Menig, to keep many men of the above caliber on the service force. It is equally unsatisfactory to attempt to recruit service men at a seasonal rush period, for their service will be deficient if they have not been adequately trained. Yet the very type of installation requiring this expert service is the type that can "wait till next year" if prompt service is not available.

Summer Sales Solution

In the interests of economy some means must be devised to kee pthe service force intact the year around, and this can only be done by turning over business and making installations in the summer months. To the skeptical this course will appear about as feasible as selling flypaper in December, but the experience of the Gas Radiator Company, as outlined to the writer by Mr. Menig, proves that summer sales are highly possible to the firm willing to go out and get them.

"It's the same identical problem as solid fuel dealers used to face in getting easterners to fill their coal bins in advance of the winter rush season—they have to educate the buyer to the idea," says Mr. Menig.

Canvasses Bring Results

In pushing summer sales the Pacific Gas Radiator Company has used personal canvasses and house-to-house handbilling, together with newspaper space. The personal interviews with householders have been particularly stressed in the older parts of the city which were built before gas came into its merited popularity, and these efforts have been very productive of sales.

Other classes of prospects worked on for summer installation are the builders of new homes, who, through a mistaken sense of economy, prepare for a gas heating unit, but put off installing it until money is freer. To this class of prospect the salesmen point out that it is a sound investment to buy in summer when prices are somewhat more attractive than at other seasons. This feature has also provided some highly effective advertising copy for the Pacific Gas Radiator Company.

Not a Local Problem

The problem of servicing fall rush orders is by no means local to Los Angeles. Wherever new appliances are being sold

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The Four Elements *of a* Successful Sale

"Sales Department is the Life Blood of All Industry," says Head of Los Angeles Retail Appliance House. Service Must Accompany Selling

By R. G. Logue
President and General Manager, Beacon Light Company

FOR a long time it has beeen universally recognized that there are four important steps in making a sale, namely, securing the favorable interview, creating interest, creating a desire, and bringing decisive action in closing.

Favorable Interview Important

The favorable interview is very important and the bright salesman recognizes that fact. If he happens to call on a man who is overly busy or is not in a mood to be interviewed it is a waste of time to force an interview, and the latter, if secured, would probably be unsuccessful. This point must be very carefully studied by the outside salesman. It is far better to make several calls and find an occasion when the time is ripe for presenting his proposal than to force an appointment.

The inside or floor salesman is not bothered with this point, because every person who enters the store does so of his own volition. The time is always favorable for presenting his merchandise.

Creating an Interest

The next step, creating an interest, is also very important and the approach must be made tactfully. Many salesmen have the habit of addressing a customer and asking if he is interested in saving money, if he is interested in a proposition that would be of great personal benefit, or some such open remark. In some cases this may create the desired interest. In other cases it is too bold and sometimes reflects upon the ability or intelligence of the customer, and is often resented.

Generally a salesman can select a few opening questions or statements which apply to his particular line of merchandise, and with them focus the customer's interest. At all events the interest must be aroused in the special line of merchandise at hand, even though the necessity for buying some merchandise of that general character is felt by the prospect.

Creating a Desire

After an interest has been aroused, a desire for this particular kind of merchandise must be created. There is a big difference between creating interest and creating desire, which difference can be easily illustrated by the thousands of people who watch street venders. Nearly everyone will stop for a few minutes and become highly interested in a man with a patent potato-parer, a new fangled collar button or some lotion to take the stains out of different fabrics, and many people will stand by a street faker until he has finished his demonstration, and they are all very much interested, but only a small percentage are impressed with the desire to purchase.

There are a great many means of creating the desire to buy. In the case of the street vender most people recognize the non-responsibility of the man selling. The reliability of the firm is an important factor influencing a sale, as is also the service that goes with it. The lasting quality of the merchandise, its contribution to the comfort of the home or person, its attractiveness, all may be summoned by the salesman to assist in creating a desire to possess the article in question.

R. G. Logue

Decisive Action

Decisive action in closing is of course the harvest after all the toil the salesman has been through. If the order is not secured the salesman has failed. In every sales interview there generally comes a psychological moment for closing, if the close is to be made.

When a customer signifies his willingness to buy it is always well to immediately stop any further explanation of the subject. Many and many a sale has been lost by talking too much after the customer has said "I guess I will take it."

After the salesman has satisfied himself that the merchandise he has is well adapted to the customer's needs he must always remember that the order is the only thing he is trying to get. He may be a fluent or beautiful talker, but the instant the customer shows a disposition to buy, or a psychological moment arrives where a closing word or sentence could be dropped, the talk should be immediately dropped and all interest centered only in writing up the order.

A sale should never be forced, except as a last resort, but the salesman should be alert for every opportunity to write the order.

Closing the Sale

After a sale has been completed the salesman can appropriately close with a few words on the reliability that goes with the service of the house, and perhaps a word emphasizing the quality and serviceableness of the article just purchased. A reiteration of the guarantee usually has a good effect, sending the customer away with a sense of confidence in the purchase and the store. The customer should always be thanked for his patronage.

It may be said in all truth that the sales department is the life blood of all industry. It is equally true that service is the heart that pumps the life blood. A salesman should never overlook the fact that the service responsibility is placed directly upon him as far as the customer is concerned. All salesmen must give ultimate service to their customers. They must sell satisfactory merchandise, they must insist that their company stand by its guarantee and render the service due after each transaction. A salesman must give service to his company by making sales that show a satisfactory profit.

Personal Return

Sales service on the above plane means the highest personal return to the salesman, for in rendering full service he builds a clientele of satisfied customers, receives a proportionately larger remuneration, and earns an established standing and recognition in his company.

MANUFACTURE NEW RANGE IN LOS ANGELES

Starting with a daily production of 25 ranges on June 15, Gaffers and Sattler of Los Angeles began the manufacture of the Premier Gas Range.

See the Association Page in this issue for information on transportation to the Convention.

View of the Devlin-Drew Cooking School in Session

Fresno Dealers Get Prospects *with* Cooking Demonstration

ADD one more name to the list of progressive dealers who have caught the big idea of selling housewives modern stoves by first selling them the idea of modern cooking. Every woman in Fresno is anxious to become a better cook. Every woman in Fresno wants to relieve herself of as much kitchen drudgery as possible. And every woman in Fresno is a prospect for some improvement or other in the gas appliance equipment of her home. That, of course, is why Fresno is so much like other towns.

Devlin and Drew both had suspicions that much of the cooking equipment of the good wives of Fresno was of the type that came in when zinc-lined bathtubs were so modish. In this respect, Fresno is similar to Spokane, Salt Lake City and Denver.

Uncovering Prospects

The idea, then, was to get a good list of prospects, prospects who were preparing the daily bread with apparatus just about one jump ahead of the dutch oven and open fireplace era. So, in order to get these prospects, and in getting them to fire the opening gun of a sales campaign that may some day mean a modern stove and an oven regulator in every dwelling in the city and environs, Devlin-Drew inaugurated their cooking demonstration.

Drafted into service in this worthy cause were Margaret Chamberlain of San Jose, cooking authority and demonstrator of ability; and B. S. Pederson of San Francisco, who knows all about oven heat control, in addition, of course, to many other accomplishments.

Demonstration Features

The program as laid out included oven canning demonstrations every day, in conjunction with special classes on cake and biscuits one day, preparing a full meal another and on still another, pastry baking. On Thursday a special evening class was held for the benefit of those who work during the day, and were thus unable to attend the regular sessions.

A full meal prepared in a locked oven, attracted widespread attention. At nine o'clock the roast and vegetables were placed in the oven, the regulator was set, the door locked, and the key handed to a member of the audience, who was instructed to bring it with her at noon.

A Guessing Contest

Then cards were distributed and all present were invited to guess the number of feet of gas that would be required to cook the meal, the closest estimate to be awarded a prize of a full set of aluminum oven cooking utensils.

The cards, which also contained questions on the type of stove used in the contestant's home, how long it had been there, whether or not it had oven heat control, were carefully filed after the contest for use as a prospect list, to give the salesmen advance information on every call to be made following the close of the demonstration.

Sixty-two feet of gas was the meter reading after the meal had been removed from the oven, and the winning guess was sixty feet.

Good Attendance

The average attendance was about fifty-five to a meeting, and in many instances, the same faces were seen at every demonstration. At every meeting cards were distributed for the visitors to sign, and except on the day of the full meal demonstration, a cake, baked by Mrs. Chamberlain, was awarded to some member of the audience by drawing one name from those turned in.

In support of the campaign advertisements were carried in the two daily papers, and the show was held in a store rented for the occasion, just a few doors from the company's permanent establishment.

So with a fat list of prospects to work on, with a good stove and a good regulator to tell them about, and with Devlin-Drew Company to do the telling, it seems safe to say that Fresno is due to buy a good many more stoves than it thought of buying some few weeks ago.

Utility Purchasing Activities

(Continued from Page 13)

chines for air-testing all valves and fittings which come from the factory for use. Here also are tested valves and fittings which have been reclaimed for the salvage department. As a matter of economy it is as necessary to test these reclaimed materials as to make sure that nothing which is useful is discarded.

Special Purchases

In spite of all that can be done in order to make the forecast of the needs of every department, it is occasionally necessary for branch offices to make special purchases. To this end the purchasing department has issued to the branch and field offices, special purchase order forms which enable them to procure, as needed, any material not carried in stock. Naturally these orders are not used except upon special need, and except in case of emergency, they are limited as to the maximum amount which they will cover. Operating conditions vary and emergencies may arise which will so effect our service as to necessitate immediate expenditure, for the service of a public utility must be continuous and dependable.

Standing Orders

For materials needed in the ordinary course of operation, monthly standing orders are issued to the divisions to cover their needs. The supplies requisitioned by the divisions are purchased by the purchasing department under yearly blanket contracts covering sufficient for the entire system.

To make the purchasing department even more flexible, any case not otherwise covered, can be taken care of during office hours by telephoning to the purchasing department, or telephoning, after office hours, to the purchasing agent's residence.

Negotiators

During the war it developed that the French used the word "negotiator" in preference to "purchasing agent," and

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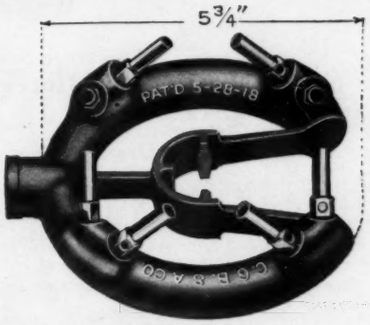

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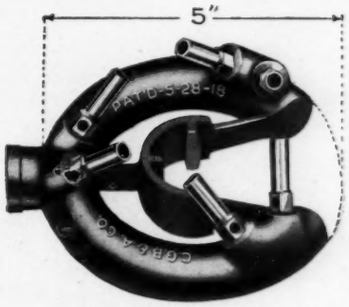

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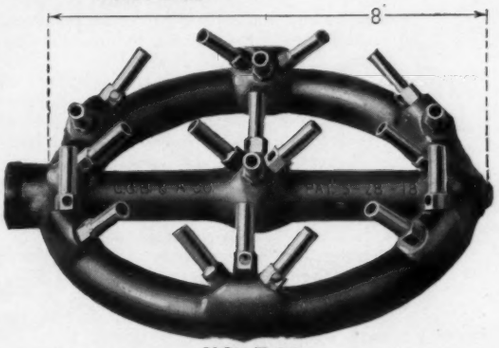

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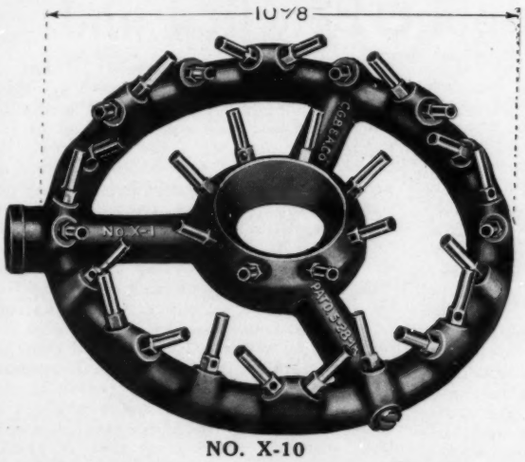


NO. X-10

NO. U-10

No heater is better than its burner and without an efficient burner no appliance stands the test—that's why the leading Manufacturers of Hot Water Heaters, Gas Furnaces, Boilers and Heating Appliances are adopting as Standard

BARBER Patented GAS BURNERS

(Made in Numerous Styles and Sizes)

Ten sound reasons why they are far the most perfect on the market.

1. *Will reduce gas bills 25 to 40 per cent.*
2. *Render the pilot light unnecessary.*
3. *Can be controlled with any good thermostat.*
4. *Will not back-fire, or deposit carbon—upon any gas pressure.*
5. *Will develop a flame temperature of 160 Fahr. with 500 Btu. gas.*
6. *Require no adjustment, regardless of pressure or quality of gas.*
7. *Jets or orifices cannot become corroded or clogged, or affected by condensation.*
8. *Will produce a perfect orange-green flame with Artificial, Natural or Mixed Gas.*
9. *Are the result of over six years' careful development by Gas Burner Specialists.*
10. *Have been adopted by leading Heater and Gas Appliance Manufacturers.*

Barber Patented Jet Burners are ideal for Hot Water Heaters, Small Steam Boilers, Furnaces, Liquids and Metal Pots, Candy and Doughnut Stoves, and Similar Appliances.

Why not write us today and let us assist in solving your gas burner problems. You will not be obligated in the least.

Write for our new catalogue and discounts.

The CLEVELAND GAS BURNER & APPLIANCE CO.

Burner Specialists

3702-04 Superior Avenue, Cleveland, Ohio

"Degree Day" Is Newest Heat Unit Term

THE "degree-day" is a new term invented by gas and fuel engineers for the purpose of measuring heating requirements, and appears for the first time in "House Heating," a book recently published under the auspices of the American Gas Association.

With the increasing demand for city gas for house heating and industrial heating purposes it became necessary to have some word or phrase which would enable engineers to make comparisons between heating loads under different climatic conditions or at different points. The "degree-day," which was the result, is the product of a degree of temperature and a time factor of one day.

In studying actual domestic conditions, the American Gas Association determined that the minimum temperature of bodily comfort in the home is reached when the mean daily temperature falls below 65°.

If, then, we have a mean daily temperature of 60° F., it is evident that, for this day, we can measure the heat requirements by the figure "5° days," whereas, had the mean temperature been 55° F., the requirement would be measured by "10° days," or would be twice as great. For a week or a months or a heating season, the aggregate heating load of any locality may be expressed in units that permit comparison with that of any other point. Likewise the heating requirements at any given place during the heating season may be compared with those of any other heating season by the "degree-day." So a "mild winter" or a "hard winter" becomes definable in accurate units that may b e translated into B. t. u. Basing these units on the very accurate data of the weather bureau a high degree of accuracy results.

SAN DIEGO SCOUTS LEARN RESUSITATION METHODS

The Schaeffer Prone Pressure method of resusitation from asphyxiation, drowning or electric shock will soon be common knowledge among the boy scouts of San Diego, if the efforts of W. E. Richmond, first-aid officer for the San Diego Consolidated Gas and Electric Company, and F. M. Cota of the company's gas production department, bear fruit. Several meetings with troops of the city have been held, and demonstrations made and explained, with keen interest exhibited by all those present.

HOUSE HEATING BY GAS IS ON BIG INCREASE

The increase in gas-fired house heating systems has averaged more than 2,000 per cent since 1919, says a statistical report just issued by the American Gas Association. "A summary of the percentage sales of the leading manufacturers of gas-fired house heating systems," according to the report, "shows that the biggest increases have come since 1921, which was a rather poor year. One of the largest concerns in this field made nearly 50,000 house heating installations last year alone, which, for this company, was an increase of 6,000 per cent over 1919.

FIGURES ON MANUFACTURE

From 70 to 80 per cent of the gas manufactured in America is manufactured from a combination of oil and coal. Last year the industry used seven million tons of bituminous coal, one million tons of anthracite coal and nearly one billion gallons of oil.

No Profits *from* Price Cutting

By H. L. Boyd

Secretary, Southern California Retail Hardware Dealers' Association

SINCE the time that money became the medium of exchange, yes, and even before that, there have always been some merchants who were willing to sell their merchandise for less than it was worth, service and quality considered, rather than exert a little selling effort and make a fair profit.

At the present time, there are many merchants who do not know accurately or even approximately what it costs to sell their merchandise and to render the service which they are required to render. There are merchants who are losing money and still persist in cutting prices on standard merchandise such as gas appliances, thinking more of the $5 or $10 margin they make at the cut price than of actually making a profit on the transaction—in other words, taking any price offered in excess of the invoice cost and not taking into consideration any overhead expense or net profit.

Minimum Profits

When, for example, one considers the figures which have just been published for the retail hardware business for the year 1924, it is astonishing to note that the average net profit on sales of the 1267 stores reporting was only 0.44 per cent—less than 1 per cent on their total volume of business. Still there are some retail hardware merchants who think they can sell gas appliances at reduced prices and make money.

If one were to investigate the conditions existing in the retail furniture trade, one would find much the same state of affairs or perhaps the average would show a loss last year.

Cut Prices and Volume

It is often said that cut prices will increase the volume and thereby make more money for the dealer. To a certain extent this is true, but let us look for a moment at the figures and see whether or not the volume can be increased sufficiently to justify any substantial reduction in the usual percentage of mark-up.

Take for instance a merchant selling gas appliances who is accustomed to a mark-up of 50 per cent on his cost, or 33 1/3 per cent on his selling price. If he cuts his price 5 per cent he must do 11.7 per cent more business to make the same amount of money. If he cuts his selling price 10 per cent, he must do 28 2/5 per cent more business, and if his cut amounts to 20 per cent, he must practically double his volume of business, in order to have as much money left for himself at the end of the year.

If his average mark-up is less than 50 per cent, he must increase his volume even more than the above figures, if he decides that cut prices are the road to wealth. If his average mark-up, for example, is only 30 per cent and he cuts his selling prices 10 per cent, he must increase his volume of business 35 per cent.

These figures show conclusively that while cut prices may have a tendency to increase volume, the prospect of increasing it sufficiently to care for the loss in profit is more or less remote.

A Manufacturer's Price

It seems to us that the only way to protect the merchant from himself and to put the gas appliance business on the right basis is for the manufacturer to maintain a standard price on the lines he makes and then goods will be sold on their merits rather than solely on a basis of price.

Pacific Gasoline Benefit Fund

A PACIFIC Gasoline Benefit Fund is the latest contribution to company personnel policy to be adopted by the Pacific Gasoline Company of Los Angeles. An organization meeting was held in the general offices of the company on June 5, at which time the rules governing participation in the fund were read by Alfred Wright, associate counsel. The plan was unanimously subscribed to by those present.

Eligibility

The plan, briefly summarized, follows:

Any person now in the service of the company as an officer, director or employee who shall within thirty days of date of organization make application for membership and any person who shall hereafter enter the service of the company and make application within ten days thereafter and who shall have passed the medical examination of the company within thirty days after making such application, is eligible for membership in the fund.

Every member of the fund who ceases to be an officer, director or employee of the company automatically ceases to be a member of the fund.

Upon approval of application for membership $1.00 will be deducted from the compensation due the applicant, to be kept in the fund until disbursed to the beneficiary of some deceased member, when another dollar will be deducted from the compensation due each member. In this way the fund will always be in readiness.

Create Fund Committee

Disbursement of the amount in the fund will be made to the beneficiary of any deceased member immediately upon receipt of notice of the death by the fund committee. This committee may order any part of such fund to be applied to the payment of expenses of the last illness and funeral expenses of the deceased member and pay only the remaining balance to the beneficiary. Members of the fund may change their beneficiary at any time by giving written notice to the chairman of the fund committee.

A member may withdraw from the fund by sending written notice to the chairman of the fund committee, his signature to such notice to be witnessed by at least two persons, preferably employees of the company. Any person ceasing for any reason to be a member of the fund will be reimbursed the amount last deducted from his compensation, which at the present time is $1.00.

Purpose of Fund

The purpose of the fund is to provide the beneficiary or dependents of each deceased member with a sufficient sum to defray the immediate expenses connected with such misfortune, without feeling that charity is being accepted. Furthermore, it should do away with the necessity of collections being taken among the employees for such purposes.

PETROLEUM SECURITIES PLANT

The Petroleum Securities Company, a subsidiary of the Pan American Petroleum Corporation, has a gasoline absorption plant nearing completion in the Inglewood field.

250,000 Satisfactory Gas Heating Installations Make PACIFIC the Leading Gas Heating Organization on the Pacific Coast!

Radiators

Pressed Metal Radiators are the least expensive--and often the best--type of gas heating. Pacific radiators are made vented and un-vented, of strong, rust-resisting metal. Exclusive air circulation system reduces gas bills 25 per cent.

Warm Air Units

Concealed below the home, these units are operated by upstairs control. Maintain even temperature automatically. The ideal heating system for Wstern homes.

Radiant Heaters

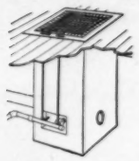
Pacific and other makes. Inexpensive installations.

TWELVE years of experience in all heating problems have enabled Pacific to perfect a complete line of superior heating appliances.

More Selling Points!

You'll find it easier to sell Pacific radiators and furnaces—because point by point, you can show how the Pacific excels any other similar appliance in efficiency, economy and quality. Send for dealer's offer and catalogs.

Floor Furnaces



From two to five rooms may be heated with warm fresh air by a Pacific Floor Furnace. Air is drawn from the outside and an exclusive circulation system heats it quickly, saving gas consumption.

Gas Steam Radiators

The first **vented** gas-steam radiator was made by Pacific. Also made unvented. Used in homes and office buildings. Each radiator is an individual, self-regulating steam heating plant. Air circulation system gets greater heat from 25 per cent less gas.

Pacific Gas Radiator

Gas Heating **Company** *Headquarters*

General Offices—1470 West WashingtonSt., Los Angeles. Phone BEacon 2190.
Factory and Foundry in Los Angeles. Represented Throughout the West

One Company's Service Experiences

Appliance Dealers and Utility Both Benefit Through Company's Customer Service Program

AS FAR as we know, the gas users in Santa Cruz, in Watsonville, in Gilroy and Hollister are no better and certainly no worse than the gas users in any other part of the West. And being just ordinary folk, with ordinary foibles, and with ordinary prejudices and opinions, they feel it incumbent on themselves to occasionally take the gas company to task for such little trifles as high bills or low pressure, or too much heat in the kitchen and too little in the oven.

To hurry in, at the consumers call, and adjust these various matters and adjust the appliances as well, and to explain carefully that it is not the pretty yellow flame that does the cooking, and to point out that when the lining is gone, some of the heat is bound to be transfered from the oven to the kitchen, is the job of a service man in the employ of the Coast Counties Gas and Electric.

An Essential Service

These calls are absolutely essential in the interests of good service to the consumer, and in the interests of friendly public relations. The problem, as Morris F. Wales, general agent of the company, saw it, was not to have the consumers see less of the company's representatives, but rather that the representatives should put in an appearance more often. As far as the utilities are concerned, it might well be said that eternal vigilance is the price of good will.

Complaints that come in only indicate that there are others smouldering in confinement, and it is well to have a representative of the company meet the gas user once in a while, just for policy's sake.

The territory of the Coast Counties Gas & Electric Company is so laid out that a service and inspection man makes a call on every consumer at least once in every eighteen months, whether there has been any call for service or not.

Service Cards Kept

On every call made a service card is turned in, and it is through the medium of these service cards that the dealers in the towns that are served by the Coast Counties company are cashing in on the efforts of the utility field man.

The data accumulated, as the accompanying illustration shows, is worth money to the merchandisers of gas appliances, and it is to these men that the company turns them over, for all appliances in the Coast Counties territory are dealer-sold. Every dealer in every town gets a list of all the prospects uncovered in his town.

A service man will average sixty calls a week, and a typical week selected at random from the records of Mr. Wales will show how well this service is being made profitable to all concerned —the utility, the dealer and the consumer.

A Typical Week

Sixty calls in one week developed twenty-four prospects: 14 for new ranges; 7 for radiant type heaters; 3 miscellaneous equipment. These prospects were turned over to 5 dealers and 11 sales resulted within the next week: 7 ranges, 2 radiant heaters and 2 miscellaneous. This does not include the additional sales that were undoubtedly made during the next few weeks or months, as a direct result of the dealers having secured these live prospects.

The territory of the Coast Counties is small, consequently one man only is required to cover it effectively. But, in the opinion of Mr. Wales, companies serving larger territories have bigger sales opportunities, and the percentage of homes in need of new equipment is about the same in a town of ten thousand as in a city of a quarter of a million.

SERVICE CARD

Date.....192...

Name .....

Address .....

Town .....

CLASS	EQUIPMENT IN Service
House	Meter
Flat	Piping
Apartment	Lights
Store	Cabinet Range
Factory	Double Oven Range
Hotel	Single Oven Range
Restaurant	Hot Plate
	Tank Water Heater
REPAIRED	Auto. Water Heater
Meter	House Heater
Piping	Iron
Lights	Oil Stove
Range	Wood Stove
Hot Plate	REMARKS
Tank Water Heater	
Auto. " "	
House Heater	
Iron	
Cleaned Service	
Cleaned Regulator	

Service Card Used by Coast Counties Gas and Electric Company

Forceful Advertising

IT is not often that one has a chance to determine just how much of the results in business are attributable to advertising.

The experience of the Portland Gas & Coke Company, however, is one instance where the results of advertising are plainly evident, for no other methods were used, there being no solicitors or personal effort to aid in the sale.

Briquet Campaign

On April 1 the Company decided to start its summer campaign on Gasco Briquets, allowing $1.00 a ton in order to prevent the annual congestion of orders in the fall and to keep their men and the automotive equipment employed.

While the company has been able to dispose of about 200 tons for April delivery, in this way this year the sales for April delivery exceeded 4000 tons.

While the previous three years during which the special summer price has been a feature, the sales ran from 3000 to 4000 tons for the month of May, this year the sales were over 5000 tons, or a total for the two first months of the campaign of 9165 tons, as against 5515, 6176 and 6930 tons for 1922, 1923 and 1924 respectively.

A Record Extraordinary

As this increase is in spite of less favorable industrial and financial conditions and also in spite of a determined effort by the coal people to get their share of summer business and thirdly, a decline in prices for coal, the effect of the increased advertising as shown in the very large increase in sales is noteworthy, demonstrating what can be done by advertising alone.

CANADIAN GAS MEN GATHER IN 13TH CONVENTION

Both sides of the international boundary will be plentifully represented when the Canadian Gas Association Convention opens its 13th session in Quebec, July 15-16. An excellent program of papers, a demonstration of home service work and other program features are planned, and reservations are being filed rapidly.

GAS IN NEVADA

A recent report from Nevada states that drilling near Coaldale has brought in a heavy flow of gas at 4,940 feet. Tests are being made to determine if the gas carries gasoline and helium.

APPLIANCE SOCIETY UNIT HEARS ADDRESS

"Fundamentals of Success" was the topic of an address delivered on June 19 to the San Francisco unit of the Gas Appliance Society of California, by John H. Schiveley, executive secretary of the Insurance Federation of California. The address was heard at a noon luncheon gathering at the Clift Hotel, San Francisco.

CITY OF LONG BEACH LAYS LINE TO ROSECRANS

A gas line connecting with the Barnsdale lease in the Rosecrans oilfields has been completed by the City of Long Beach. The line is delivering 3,500,000 cubic feet of dry gas daily, for use in the city system. The gas is taken at present by suction, but a compressor plant is to be completed at the Rosecrans field by August 1.

Will your hotel accommodations during the Convention be good, or just passable? Reserve now!

Oakland Session

(Continued from Page 12)

who were able to save the life of a fellow workman, and extended to them, along with the medals and certificates, his own personal congratulations.

The closing word, left by President Hall, was to the effect that a warm reception awaits everyone who makes the journey to Portland next August. After a rising vote of thanks to the Oakland delegation for their fine hospitality the meeting was declared adjourned.

Summer Selling

(Continued from Page 22)

—and that is all over the west—this seasonal strain has meant lost business, particularly in the class of vented appliances, where considerable time is required to make the installation.

This condition should not be regarded as inevitable, especially in the light of what a few aggressive companies are accomplishing in the summer sales line, July and August, 1925, should be active months for the foresighted dealer.

THE T. G. ARROWSMITH CO.

The Sexton Closed Hot Top Patented Hotel Gas Range

Illustrations show a single unit and a battery of Sexton Ranges—in the Hotel St. Francis, San Francisco.

The new patented center gas control on this range is beginning to revolutionize gas cooking. It is so simple to operate that any chef can handle it, even if he has been accustomed to coal burning ranges.

The Sexton Control eliminates a number of small gas cocks, and it has an indicator, which shows the number of burners on or off. It does not simply turn the gas down, but turns out every other burner with a half turn of the lever.

THE S. B. SEXTON STOVE & MFG. CO.

T. G. Arrowsmith Co., Pacific Coast Representatives

135 New Montgomery Street
San Francisco

Convention Plans Near Completion

(Continued from Page 16)

Meter Reading: You will be surprised to find out that there are so many angles to the organization and conduct of a successful meter reading force, that is, one that is a credit and an asset to the company.

Cost Accounting: The problem discussed this year is the cost of transportation. A complete system of motor transit cost accounting is outlined in the report.

Credits and Collections: This report will be a sequal to that presented last year. The last word can never be said on this important topic.

In addition to the reports of regular committees there will be three papers presented by the Accounting Section. One will be an extremely comprehensive study of Bonus Systems and it is hoped that this can be presented before a general session. The second will be a paper on cost keeping for large auxilliary apparatus such as ditching machines, pipe layers, etc. The third paper will discuss operating statistics in regard to their gathering, their use and their importance.

COMMERCIAL SECTION

Home Service Bureau: Association members are already familiar with the monumental task that this committee has accomplished in the last two years. The report was discussed at the Oakland meeting and is now undergoing revision and improvement. It will be presented for final approval at the Convention.

Advertising Bureau: The Association is an ideal instrument through which to present some phases of advertising and publicity. This function will be defined and a working plan presented for approval. The exhibit of actual advertising, started last year, will be continued as a regular feature, and in addition an address will be delivered by an advertising authority.

Merchandising Bureau: This report outlines successful sales methods, and takes up displays, dealer helps, knowledge of merchandise and other requisites for real success in selling gas appliances.

Utilization Bureau: Three reports will be presented, dealing in turn with the use of gas in restaurants, bakeries, and under steam boilers. All of these reports are written by experts in these specialties.

PUBLIC RELATIONS SECTION

The field covered by the Public Relations section this year is so broad and so important that it cannot be adequately described in brief. Through a series of reports and addresses the very latest ideas in treatment and training of personnel, customer ownership campaigns, and executive responsibility will be set forth and, in addition, the function of the Association as a co-operative and as an educational body defined.

Natural Gas *as* Agricultural Asset

(Continued from Page 17)

has expert men in the field who are in constant touch with the gas consumers and are prepared at all times to render any assistance that is necessary.

That the modern gas engine is able to give continuous service has been definitely demonstrated, as natural gas engine users who are also using other energy and who have kept accurate records of shut downs, show that not only in number but length of time, the shut downs are a great deal more with other service than gas engine service.

One of the large users of gas engine service in Southern California who has many hundreds H. P. has accurate records, showing that his forced shut downs under continuous operation are less than 3/10 of one per cent, really a remarkable record which we are sure cannot be equaled by any other source of power. These things emphasize the reliability of the modern internal combustion engine.

Another item that comes up very frequently when natural gas engines are discussed, is the question of labor to operate the engine. Generally speaking, it is a fact that any internal combustion engine requires somewhat more attention than does an electric motor. However, this is negligible, as is evidenced by the fact that among eighteen of our largest engine users who are mutual water companies, no more men are employed than was their practice when using other sources of power.

Another item, in fact two, is the question of depreciation and repairs. These go hand in hand, as one depends upon the other. It is a well known fact that if the operator of any piece of equipment does not give it the attention that is necessary, repairs are low and depreciation high. On the other hand, if repairs are kept up as they should be, they may be somewhat higher but depreciation is lower.

All evidence accumulated to date leads to the conclusion that with proper upkeep a well built gas engine is assured of as long life as any other type of prime mover.

The above discussion presents a few arguments from the many in favor of natural gas for power purposes.

Officers Elected by Northern Unit

IN a meeting held in the Clift Hotel, some weeks ago, the San Francisco Unit of Gas Appliance Society held its annual election of officers, and discussed the results of the Gas Appliance Display week.

Andrew Kerr presided, in the absence of President O. C. Bunster. The recommendations of the board of directors, which were adopted unanimously, placed the following officers at the head of the local unit for the coming year: H. Sieroty of the Eastern Outfitting Company, president; Max Brown of Chas. Brown and Sons, vice president; and L. Harlan McCoy, Pacific Gas and Electric Company, reelected secretary-treasurer. O. C. Bunster, retiring president, was named chairman of the board of directors.

San Francisco Manager Bostwick, of the Pacific Gas and Electric Company, mentioned briefly the company's new policy on the sale of appliances to employees. He also told the manufacturers that the windows in the old building at 447 Sutter street are to be turned over to the display of gas appliances as soon as remodelling operations, now in progress, are completed.

The San Francisco representative of *Western Gas* was invited to present the newly-established publication, and in response he told briefly of the motives behind the publication, outlined the policy it would pursue and pledged its unqualified support to the work of the Gas Appliance Society.

Los Angeles Appliance Society Forming

AS *Western Gas* goes to press the second of two organization meetings held in June by the Gas Appliance Society of Los Angeles is in session, and prospects are entirely bright for its establishment on a firm working basis, according to Geo. Finney, who as chairman of the Los Angeles Society has devoted a great deal of time and effort to its launching.

Companies Co-operate

The Los Angeles gas companies are unanimously behind the Society, having contributed both financial and moral backing, and the same can be said for Los Angeles manufacturers, jobbers and distributors of appliances.

Plans looking to the establishment of a permanent office with executive secretary in charge are under way, and a board of directors is in process of formation. At the meeting of June 26 an election of officers and appointment of committees was anticipated.

Hope to Raise Standards

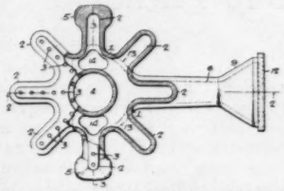
The Appliance Society is being formed in Los Angeles with a view to co-operating with the city officials in any effort to be made for betterment of appliance standards, and the organization will work with the Pacific Coast Gas Association in contributing suggestions for the Service Manual and the Certification of Appliances plan now under consideration.

CENTRIFUGAL STEAM SEPARATOR

An interesting development of the original steam separator is described on an information leaflet on the new Stratton separator which has just been published by the Griscom-Russell Company. This device, which has been in use on high pressure steam lines for a number of years, has been improved with a larger helical path and a spatter cap on the outlet pipe to increase the separating efficiency. Copies of the leaflet No. 408 can be obtained by addressing the Griscom-Russel Co., 90 West Street, New York.

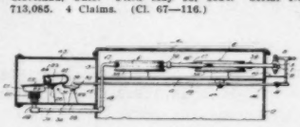
THIS MONTH'S PATENTS PERTAINING TO THE INDUSTRY

1,527,920. BURNER FOR GAS STOVES AND RANGES. Clarence V. Roberts, Philadelphia, Pa., assignor to Roberts & Mander Stove Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Sept. 28, 1923. Serial No. 665,361. 1 Claim. (Cl. 158—99.)



The combination in a gas burner, of a hollow integral casting forming a body portion having a central opening for air; perforated, hollow arms projecting radially from the body portion; a longitudinal mixing chamber extending under the burner and bifurcated at its inner end to pass on each side of the central air opening, the ends of the bifurcated portions of the mixing chamber communicating with the hollow body portion of the burner; and means for admitting gas and air to the mixing chamber.

1,524,624. STOVE APPLIANCE. Abraham Liberman, Cleveland, Ohio. Filed May 13, 1924. Serial No. 713,085. 4 Claims. (Cl. 67—116.)



8. In a safety appliance for gas stoves, the combination of burners, tubular projections arranged within the burners and communicating with the burner holes, cocks for controlling the supply of gas to the burners, a spring for placing the cocks under tension when open and a bar having a rack that engages a portion of the cocks to retain them in open position, a bellows having a bulb actuable when the flow of gas is interrupted to the burner outlets, a platform actuable by the bulb and adapted to actuate a second platform that in turn actuates the rod on which the rack is arranged and means for returning the rod to its normal position.

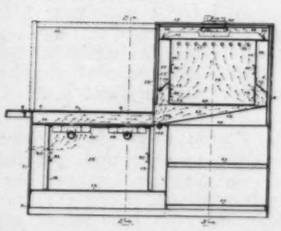
1,526,435. GAS RANGE. George E. Pickup, Newark, Ohio, assignor to The Wehrle Company, Newark, Ohio, a Corporation of Ohio. Filed Sept. 11, 1922. Serial No. 587,638. 3 Claims. (Cl. 126—39.)

1. A gas range having an open top section provided with a plurality of burners, an oven section having a pair of burners, a gas manifold extending along the front of the open top section, and a header constituting an auxiliary manifold for said two oven burners, said header being in the form of a hollow casting comprising an upper horizontal portion open at one end and connected at said open end with the main manifold, and a lower portion communicating at one end with the upper portion and having its lower end terminating directly below the free end of the upper portion in spaced relation thereto, said oven burners having forwardly extending portions arranged one above the other and in valve controlled communication with the upper and lower portions respectively of said header.

1,524,206. ATTACHMENT FOR GAS STOVES. Sanford I. Peddoo, Pittsburgh, Pa. Filed Nov. 7, 1923. Serial No. 673,248. 5 Claims. (Cl. 126—214.)

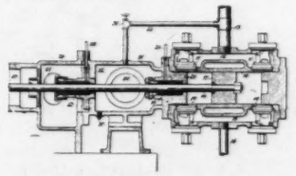
1. An attachment for cooking stoves comprising an open top and closed bottom casing providing a heating chamber and formed of an intermediate portion and a pair of substantially enlarged cylindrical end portions, said intermediate portion of the same height, as the end portions and further of less width and of greater length than the diameter of either of said end portions, the side wall of one of said end portions being continuous and the side wall of the other end portion having means for removably supporting a fuel pipe extending therethrough to a burner adapted to be arranged in said end portion.

1,524,395. GAS RANGE. John Edgar Hires, Langhorne, Pa., assignor to Joseph P. Kerrigan, Philadelphia, Pa. Filed Sept. 13, 1922. Serial No. 587,875. 17 Claims. (Cl. 126—39.)



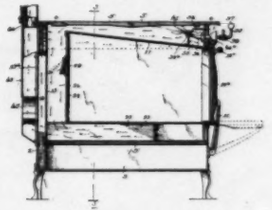
1. A gas range comprising a top, a burner plate disposed beneath and spaced from said top, a plurality of invertible burners adjacent said plate, a broiler oven beneath the burners, a baking oven disposed above and at one side of said top, a flue beneath said baking oven communicating with the space between the burner plate and the top, an auxiliary burner disposed substantially at the junction of said flue and said space, and means beneath said burner plate and in the wall of said broiler oven adapted to admit air to said oven to support combustion in said burners.

1,526,909. COMPRESSOR. Nicholai H. Hillen, Carbondale, Pa. Filed May 14, 1924. Serial No. 713,134. 4 Claims. (Cl. 230—6.)



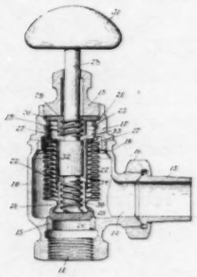
1. In a gas compressor, the combination with the cylinder, piston and piston rod, of a chamber through which said piston rod passes, a stuffing box between said cylinder and said chamber, a stuffing box between said chamber and the outside atmosphere, said stuffing boxes being independently adjustable, and means for withdrawing from said chamber gas leaking thereinto past said first mentioned stuffing box, and maintaining in said chamber a gas pressure below that of the delivery pressure of the compressor.

1,527,217. GAS RANGE. Robert L. Poe, Chicago, Ill., assignor to Super Range Company, Chicago, Ill., a Corporation of Illinois. Filed June 8, 1922. Serial No. 566,701. 7 Claims. (Cl. 126—39.)



1. In a gas range, the combination of an oven, a duct extending around said oven and having a flue outlet at one end, and a separate duct extending transversely of said first mentioned duct at the other end thereof, burners located in said cross duct and registering with openings therein, and air supply ducts leading from air inlet openings remote from said cross duct and along said first mentioned duct and communicating with the ends of said cross duct.

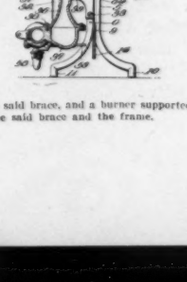
1,527,154. PACKLESS VALVE. Harry C. Mallory, Belleport, and Howard F. Clark, New York, N. Y., assignors, by mesne assignments, to American Radiator Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 23, 1920. Serial No. 368,055. 7 Claims. (Cl. 251—31.)



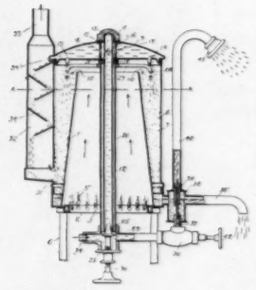
7. A valve comprising a casing having a valve seat therein, a bonnet removably supported upon said casing, an extensible and contractible member having one end secured to said bonnet and having its other end free to move, a valve carried by the free end of said member and co-acting with said valve seat, a nut supported upon said bonnet, a cap removably secured to said bonnet and serving to hold said nut against movement, a nut fixed within the free end of said member, said nuts being provided with oppositely disposed threads, and a rotatable valve stem having oppositely disposed screw threads engaging the threads in said nuts, substantially as specified.

1,527,924. RADIANT OR FIREPLACE HEATER. Joseph Roy, Cleveland, Ohio, assignor to American Stove Company, St. Louis, Mo., a Corporation of New Jersey. Filed May 28, 1924. Serial No. 716,303. 18 Claims. (Cl. 126—92.)

1. In a gas heater or the like, a frame comprising uprights, a transverse brace for the uprights which extends back beyond the uprights, and an upwardly extending frame carried upon the said backwardly extending portion of the said brace, and a burner supported at a point between the said brace and the frame.



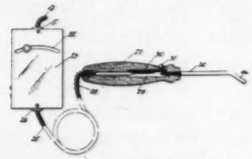
1,527,740. WATER HEATER. Jacob A. Lipshitz, Berlin, Germany. Filed Feb. 9, 1924. Serial No. 691,714. 14 Claims. (Cl. 126—359.)



1. In a water heater, the combination with a burner, a combustion chamber containing said burner, a mixing chamber adjacent to said combustion chamber, and adapted to receive the products of combustion from said combustion chamber, means to introduce water in the form of a fine spray into said mixing chamber in the same direction in which said products of combustion are flowing, and means to remove the heated water from the bottom of said mixing chamber.

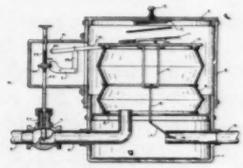
1,526,366. GAS LIGHTER. Clarence L. Old, Gilroy, Calif. Filed Apr. 21, 1921. Serial No. 463,296. 1 Claim. (Cl. 219—48.)

In an apparatus of the class described, a resistance box, a plurality of spaced contacts in one end of the box insulated therefrom, a leading-in conductor secured to one of said contacts, a binding post secured in the opposite end of the box and insulated therefrom, electrical connections between said binding post and each of said contacts, a pivot post secured in the box adjacent said binding post and insulated from the box and from the binding post, a conductor secured to said pivot post and



leading from the box, and a lever arm fulcrumed on said pivot post and adapted to engage any one of the spaced contacts.

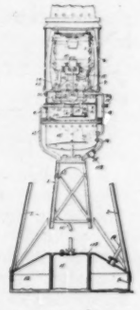
1,528,152. GAS REGULATOR AND AUTOMATIC SHUT-OFF. Jerry H. Holloway, Apperson, Okla. Filed Apr. 27, 1923. Serial No. 635,085. 3 Claims. (Cl. 50—11.)



1. A gas regulator of the character described, the combination of a housing, an inlet pipe attached to said housing, an outlet pipe attached to said housing, a bellows disposed in said housing, a valve disposed in said outlet pipe having operatable connection with said bellows, a valve disposed in said inlet pipe having operatable connection with said bellows.

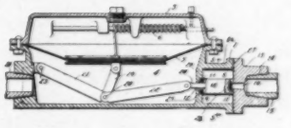
1,528,485. LUMINOUS-FLAME SIGNALING APPARATUS. George E. Hulse, Newark, N. J., assignor to The Safety Car Heating & Lighting Company, a Corporation of New Jersey. Filed Oct. 26, 1918. Serial No. 259,883. 37 Claims. (Cl. 67—111.)

1. In an apparatus of the character described, in combination, a burner, two sources of supply of gas, separate conduits leading from said sources directly to said burner, devices adapted to control delivery through said conduits to said burner, comprising means controlled by a predetermined pressure of gas in one conduit adapted to operate one of said devices to open communication to the burner, and means whereby passage of said gas to the



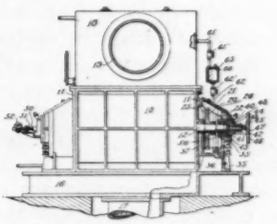
burner is adapted to operate another of said devices to open communication through said other conduit to the burner.

1,540,439. GAS REGULATOR. Walter I. Thrall, Pasadena, Calif., assignor to Reliance Manufacturing Company, Pasadena, Calif., a Corporation of California. Filed May 12, 1924. Serial No. 712,718. 3 Claims. (Cl. 50—26.)



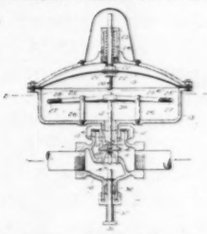
3. In a gas-regulator, the combination of a casing having a pressure chamber for the gas, said casing having a face on its outer side constituting a fitting seat with a valve-chamber formed in said seat, a valve with means for guiding the same in said chamber, a safety valve seat at the inner end of said valve-chamber and having a port therethrough communicating with the pressure chamber, pressure controlled mechanism within the casing having a stem carrying the valve and passing through said port, and a fitting constituting a distinct part independent of said safety valve seat secured on the said fitting-seat having means for admitting the high pressure gas with an inlet port and seat cooperating with the outer end of the valve to regulate the pressure.

1,528,728. METER. Carl R. Houghton and John T. Wilson, Connersville, Ind., assignors to Connersville Blower Company, Connersville, Ind., a Corporation of Indiana. Filed Sept. 27, 1923. Serial No. 665,065. 8 Claims. (Cl. 73—37.)



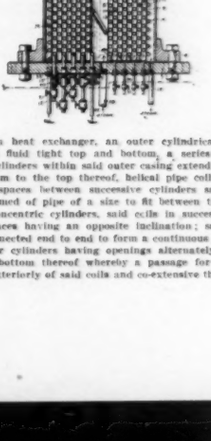
1. In a gas meter, the combination of a main casing, a pair of lobed rotary elements mounted therein and having their shafts projected through the end walls of said casing, a pair of intermeshing gears carried by projected ends of said shafts, outboard bearings for said projected shaft-ends beyond the gears, and means for enclosing said gears and bearings to prevent external leakage from the space surrounding said gears and bearings.

1,526,512. AUTOMATIC GAS CUT-OFF MECHANISM. Fred Teten, Shattuck, Okla. Filed Aug. 31, 1923. Serial No. 660,367. 6 Claims. (Cl. 67—115.)



1. In an apparatus of the class described, the combination of a check having a passage therethrough, of means for automatically closing said passage comprising a valve stem, a valve mounted on the stem, and a plunger operable upon reduction of pressure in said passage to engage said stem for closing the valve, and means for resetting said plunger and opening the valve, said valve, valve stem, plunger and resetting means being allied with one another.

1,526,320. HEAT EXCHANGER. William H. Cook, Urbana, Ohio, assignor to Chauncey B. Forward, Urbana, Ohio. Filed Mar. 20, 1922. Serial No. 545,125 11 Claims. (Cl. 257—229.)



2. In a heat exchanger, an outer cylindrical casing having a fluid tight top and bottom, a series of concentric cylinders within said outer casing extending from the bottom to the top thereof, helical pipe coils in the annular spaces between successive cylinders said coils being formed of pipe of a size to fit between the walls of the concentric cylinders, said coils in successive annular spaces having an opposite inclination; said coils being connected end to end to form a continuous passage, said inner cylinders having openings alternately at the top and bottom thereof whereby a passage for fluid is formed exteriorly of said coils and co-extensive therewith.

What Women Want *in a* Range

(Continued from Page 20)

range. This point seems to be second in the thought of the particular housewife. The woman with pride in the kitchen will generally like to cook and if she makes bread or cake, roasts meat or broils steaks and chops the chances are that she will want a fairly large oven and that she will insist upon the oven control.

Cater to this Woman!

After the woman is developed to this point of exactness she is an excellent customer, for just as her husband turns in the automobile when it begins to look road-worn, so does she trade in her range as soon as the enamel begins to look shabby, or the oven linings begin to wear thin. To my mind this is the woman who should be catered to. To please her there will be yearly improvements and a corresponding profit to the dealer. To the older woman, the term "a good cook stove" is applied to that serviceable stove with large oven and much cooking top, without reference to the control of heat or the color of enamel. She has good judgment as to the temperature, her hand stuck in the oven has been her thermometer for years, and therefore she has standardized her sensibilities to heat to such a degree that a quick, moderate or slow oven is easily distinguished, and if, after her ideas of what is best have been carried out, the cake should burn or bulge up in the center, she is none the less satisfied with the range.

Solid Tops Will Sell

The solid tops must make an appeal to the woman who does her own work, and will give satisfaction where the stove may be vented. It cannot fail to cut down the cost of gas consumed and will also give a cool kitchen, all statements to the contrary notwithstanding. I believe that the woman may object to paying for the pilot lighter on the top burners, but this again is a saver of gas and a great convenience and can be sold to the woman by the sincere salesman.

Question of Oven Lining

The lining of the oven is bound to become a question to the women who are buying the best ranges. Whether the rust-resisting linings are going to satisfy the woman who insists upon the white enamel, nickel-trimmed stove, is a problem. On the Pacific Coast the oven rust is a matter of consequence and the dealer who sells to the particular woman should have an intimate knowledge of his stove, and of the methods of keeping the lining in best condition.

We all want a stove which will require little supervision after it has been properly installed and we wish to be assured that our modern equipment, while perhaps costing more in the beginning, is also going to save us money on gas consumed for our ordinary needs. We surely want something which will be easily kept clean and, as beauty is conceded to be an important factor in human happiness, we want at the same time to have a thought for that. There is no excuse for having ugly things in our homes just because they are useful. The manufacturer has made it possible to combine efficiency, economy and beauty in the range and these factors are commanding increasing interest in equipping our homes.

A Monument *to* Utility Growth

(Continued from Page 11)

square inch and discharged approximately 500 gallons of water per minute. In all, 1517 piles were driven. The erection of structural steel started during the month of February, 1924.

A Remarkable Growth

In 1916 the Pacific Gas and Electric Company completed its eight-story headquarters building at 447 Sutter Street. Now, six years later, the organization has so grown that the various departments have been forced to seek headquarters in five widely separated localities in San Francisco. The present location is considered a most favorable one, as it is but two blocks distant from the central ferry terminal and is in company with locations of many of California's great industries.

San Francisco Offices

With the removal of the head office departments to the new Market Street building, the present headquarters building on Sutter Street will be exclusively devoted to the uses of the San Francisco Division, which has also in late years found itself cramped for space. The six-story and eight-story buildings at 445 and 447 Sutter Street will continue to be the location for the transaction of all business within the city and county of San Francisco.

VACATION FOR B. S. PEDERSON

B. S. Pederson, San Francisco, who represents the George M. Clark Division of the American Stove Company, plans to forget the stove business for a while and devote himself to the business of enjoying a vacation trip. He will spend some time in the mountains of Nevada, and will then swing around the circle, stopping at Denver, Colorado, on his return trip.

Western Gas Finds More Friends

"*Western Gas* is a valuable addition to our list of gas periodicals. When progress and change are occuring as rapidly as in our Pacific Coast cities, there is great need for reporting such progress. Our gas manufacturing processes and practice differ in many respects from those in other sections of the country, and for the technical man engaged in problems of local interest your paper should afford a valuable means for presenting his work."

WALTER M. BERRY,
Executive Engineer, California Gas Research Council.

"I have received and read with great interested the first two numbers of *Western Gas*, and if there is any way I can assist in its success you can feel assured I will be glad to do so. I shall look forward to receiving *Western Gas* each month."

ARTHUR F. BRIDGE,
Southern Counties Gas Company, Executive Engineer.

"*Western Gas* deserves to be highly complimented on its excellent first issue. If you haven't received yours yet you will find it worth while to get one and read it." —*Whats Doing* for June 2, 1925. (Official bulletin of the Gas Appliance Society of California).

"In regard to the contents of the first issue of WESTERN GAS, I desire to compliment you most highly upon the make-up of this new gas journal, as well as the excellent subject matter therein contained. I want to assure you of my heartiest co-operation in your work and my best wishes for the success of WESTERN GAS."

GEO. WEHRLE,
Superintendent, Gas Department, Public Service Company of Colorado.

"I have read the first two issues of *Western Gas* and find them extremely attractive, both in point of contents and make-up. Your journal should prove highly serviceable in our western field."

GEO. A. CAMPBELL,
Manager, Truckee River Power Company, Reno, Nevada.

FILLS A LONG FELT WANT

"This is to advise that I have noted with more than passing interest both your May and June issues, and you are to be congratulated upon your foresight in furnishing our industry with a publication primarily having to do with our developments and problems in the west.

"We, of the Pacific Coast States, have our own difficulties to cope with peculiar from those of our Eastern brethren, and your magazine if continued along the same standard as your May and June issues, will unquestionably fill a long felt want.

"Keep up the good work and I am sure that you will go over the top 100%."

HENRY BOSWICK,
Manager, San Francisco Division Pacific Gas and Electric Company.

INSPECTION AND ADJUSTMENT OF GAS APPLIANCES

The Walla Walla division of the Portland Gas and Coke Company's forces is inaugurating a new service policy to its gas customers. A specially trained service employee now makes periodical visits of inspection to users of gas-burning appliances and makes necessary adjustments.

EQUIPPING LABORATORY

R. M. Connor, formerly chief of the Portland Gas and Coke Company's laboratory and now in charge of the testing laboratory recently established in Cleveland, Ohio, under the auspices of the American Gas Association, announces that the task of equipping the laboratory is well under way and that research work to be undertaken jointly with the United States Bureau of Standards will receive the laboratory staff's first attention.

FLOYD NORGREN LEAVES GAS COMPANY AT SPOKANE

Floyd R. Norgren, former manager of the new business department of the Spokane Gas and Fuel Company, is now located in Kansas City, Missouri, where he has charge of the new business departments of 15 companies subsidiary to the Kansas City Gas Company. Mr. Norgren has been with the Spokane Gas and Fuel Company for the past eight years. He is succeeded as manager of the new business department by A. A. Salmon of the customer relations department.

NEW MACHINE SPEEDS TRENCH WORK IN DENVER

Trench work in the newer sections of Denver is being done by a new trenching machine recently put into operation by the Public Service Company of Colorado. The new machine, a Barber Greene Trencher, turns out from 600 to 800 feet of trench a day in good soil and is helping to solve the floating labor problem encountered by every utility company in construction work of this type. It does the work of 30 men.

LARGE SUM FOR EXPANSION AT ASTORIA

In 1924 the Portland Gas and Coke Company's largest district expenditure for expansion and betterment of gas facilities was made at Astoria, $40,000 being expended at this point.

RECORD TIME MADE ON GASSER BY ALBERTA COMPANY

According to H. B. Pearson, president and managing director of the Canadian Western Natural Gas, Light, Heat and Power Company, a well showing 11,000,000 cubic feet per 24 hours was drilled in at No. 5 Foremost, in record time. The well was drilled to a depth of 2215 feet in 45 days of drilling time with a Standard rig.

SAILS FOR FRANCE

George H. Warner, President of the Standard Gas Equipment Corporation, sailed on the S. S. "France" for Paris, Friday, June 5th, expecting to be gone for three months.

BILLIONS FOR AUTOMOBILES

The American Committee on Highway Transport estimates that Americans now spend $8,000,000,000 annually on automobiles. Two billions go for new cars and the remainder for repairs and accessories.

Geo. E. Whitwell *now in* Chicago

Geo. E. Whitwell

ANNOUNCEMENT was made in May of this year of the appointment of George E. Whitwell, formerly manager of the new business department and general superintendent of the Tacoma Gas and Fuel Company, to the operating staff of the Byllesby Engineering and Management Corporation in the Chicago offices of the organization, where he has assumed charge of the commercial development work in the gas department. *Western Gas*, on whose editorial advisory board Mr. Whitwell is numbered, welcomes this opportunity to review his activities in the gas industry. His contributions to the western industry in the past several years have identified him prominently in the gas fraternity, and the west will miss his active participation in forward movements of the industry.

Mr. Whitwell was born in Washington, D. C. June 17th, 1892. He attended grade and high schools in that city, later entering the Massachusetts Institute of Technology, from which he was graduated in 1915 with the degree of Bachelor of Science in Electro Chemistry.

With Anaconda Company

After being graduated from college, Mr. Whitwell followed the profession of Electro-Chemist for three years, being one of a small group of men who worked on and developed the electrolytic zinc process of the Anaconda Copper Mining Company, watching this process grow from a small laboratory cell to the 100-ton plant now operating in Great Falls, Montana, and producing zinc of such purity that it commands a premium in the open market.

Leaving the Anaconda Copper Mining Company in 1918, Mr. Whitwell enlisted in the photographic air service, and after schooling in the Eastman kodak factory, Rochester, and Cornell University, was sent to France.

Comes to Coast

Upon his return to this country, Mr. Whitwell moved to the coast and after several minor engagements, including commercial laboratory work and research work conducted for the Washington States Geological Survey on magnesite deposits in eastern Washington, he joined the faculty of the University of Washington in the Department of Chemical Engineering, retaining his connection with the University for three years. During this period he spent a considerable part of his time dealing with the question of calorific value of illuminating gas and was the expert for the Washington companies when they conducted their successful drive toward reducing standards. He was also called on for this same work in the states of Pennsylvania and California.

Develops Backrun Process

Likewise, during these three years, the Young-Whitwell Gas Process, known as the backrun process, was developed at the Everett (Washington) plant of the Byllesby organization, a large share of the development work having been under his personal supervision.

After his resignation as a member of the faculty of the University, Mr. Whitwell was engaged in consulting work for the Pacific Coast Coal Company, during that time developing the successful briquette which the company is now selling extensively in their northwest territory.

Leaving his connection with the coal company, Mr. Whitwell was employed in various parts of the United States installing backrun machines for the Young-Whitwell Process Company. The first machine to be operated in the east was at Pontiac, Michigan, Mr. Whitwell personally directing the work. This was followed by other installations in various parts of the United States.

Joins Byllesby Corporation

Mr. Whitwell's employment with the Byllesby Engineering and Management Corporation dates from December, 1920, when he became consulting engineer for the Tacoma Gas & Fuel Company, holding this position for two years. He then became general superintendent of the company and in another year's time there was added to the position of general superintendent the duties of manager of the new business department.

On May 1st of this year Mr. Whitwell received his present appointment with the Byllesby Engineering & Management Corporation. His new duties involve assisting the operated companies in developing their market for gas service and appliances.

Association Activities

Mr. Whitwell has been very active in the work of the Pacific Coast Gas Association and at present time is a member of the board of directors and chairman of the commercial section. He is also on a number of committees of the American Gas Association.

J. G. Bourus succeeds Mr. Whitwell to the managership of the new business department of the Tacoma Gas and Fuel Company.

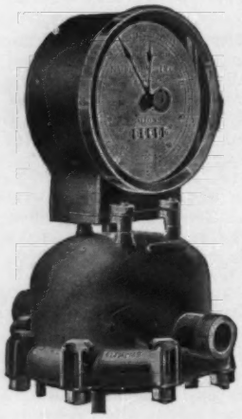
EXTENSION OF GAS SERVICE IN ALBERTA

Approximately 600 new customers will be put on the Canadian Western Natural Gas, Light, Heat and Power Company's lines through recent extensions in Lethbridge and Calgary, Alberta. The company expects that 1925 will prove a banner year in the history of their operation.

SALE OF BONDS BY PACIFIC GAS AND ELECTRIC CO.

A recent sale of $10,000,000 first and refunding bonds to a syndicate headed by the National City Company of New York has been made by the Pacific Gas and Electric Company. The proceeds have not been specifically allocated, according to the company, but will be applied in promoting the general program of construction in both gas and electric departments.

OIL METERS



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National Meter Company

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San Francisco Cincinnati
Los Angeles

Gas Solves Industrial Problems

(Continued from Page 19)

this mixture of air and gases carries the pulverized sulphur to the receiving hopper. This is done by means of a circulating fan which exhausts about two hundred cubic feet of air a minute. From the receiving hopper, the air and inert gases return to the machine. The bustle line from the furnace is connected into the discharge line of the machine. This enables the suction created by the fan to maintain the necessary draft to draw in the inert gases from the furnace. A damper is placed in the flue at the furnace to assist in proper draft adjustment. By calculation, it was found that about five thousand cubic feet of inert gases were needed each hour for this size of machine. This meant that about four hundred and twenty cubic feet an hour of 1200 B. t. u. gas would be ample. Upon this consumption and delivery, the flue gas, when analyzed, was found to be as follows: Just below the damper at the furnace the average was CO_2—11%, —O_2—0.4%, CO—0.0%, excess air 2.0%, temperature of gases, 850 degrees Fahrenheit. At the receiving hopper of the machine, where we find the true internal atmospheric condition, the average was found to be CO_2—8.6%, —O_2—2.2%, CO—0.0%, excess air 12.0%, temperature 100 degrees Fahrenheit.

Severe Tests Made

In order that the most severe test possible be made, the bronze hammers were removed from the machine and replaced with those of wrought iron, and a handful of small nails was thrown into the feed with the sulphur in an attempt to create a spark that might cause an explosion. None occurred.

This machine has now been in operation continuously, and to date no explosions have taken place. It has completely satisfied the Italian Vineyard Company, the Raymond Brothers Impact Pulverizing Company, and many others in the vicinity who are interested in the pulverization of the sulphur. It may well be said that this is another victory in the application of gas.

Triumphs for Gas

The foregoing is only one of the many problems that are being solved each day in the gas industry. It is given as a concrete example to bring before the reader that industrial gas is rapidly being placed "among those present". It may be briefly said that for bread-baking, annealing furnaces, brass-melting, clay-ware burning, and the manufacture of glassware, no other fuel has as yet produced the same qualities of wares.

The gas industry is not only facing its greatest era of usefulness but it is at the dawn of its greatest expansion. Gas companies in 1924 sold more than one hundred and ten per cent more gas than they did in 1910. Improvements in gas ranges, gas-fired water-heaters, auxiliary room heaters, low-pressure gas-fired boilers for heating large office buildings, and many new uses of gas for industrial heating operations, are the reasons for the increase in gas consumption. But to the writer, there are many more uses of gas, equally as important, which will bring even more stable results, and so will bring the gas companies closer to the customer, and, from an industrial standpoint, will bring us all together as one large family, each aiding the other.

Gas Engineers Serve

Not many years ago, if a customer could burn gas efficiently, and to his own satisfaction, he continued to use it. If he could not, the gas company paid no attention to his fuel problems, and other particular necessities of his plant. Such conditions are being changed today. The engineers for the gas company do not proceed with rule of thumb methods, but begin with careful analyses of the problems of the industry. A keen interest is given to every customer, or prospective customer, with the purpose of co-operating with him, cutting his costs, making his products of higher grade, helping his institution to grow, and giving more and better uses for gas. By doing this, he becomes a close friend of the gas company, and that costly "old-man-complaint" fades into the distance. The association and work become a pleasure because both the industry and the gas company are helping each other to grow and improve.

"SWEETENING" PROCESS GIVES GOOD RESULTS

According to a recent issue of the Petroleum Times (London), there seems to be no doubt that in the hypochlorite method of "sweetening" gasoline distillates and the gasoline obtained from natural gas, a highly efficient, convenient, and economical way has been found to prepare these substances for the market. The fact that chlorine is prepared as a by-product in a number of industrial operations, and that it can be liquified and transported in cylinders with comparative ease greatly facilitates the use of chlorine for purposes in which its former cost, added to the difficulty of transporting it, would be prohibitive.

PACIFIC GASOLINE COMPANY TO HAVE NEW PLANT

In the new Inglewood fields a two-unit gasoline absorption plant is being constructed by the Pacific Gasoline Company. The plant will treat gas from the Associated Oil Company's Vicker lease and other properties, and will have a daily gas handling capacity at the outset of four to five million feet, according to the company.

RICHFIELD OIL COMPANY BUYS COMPRESSOR PLANT

Title in the Cerritos Gas Company gas compression plant at the Long Beach field has been purchased by the Richfield Oil Company, together with contracts held by the Cerritos Gas Company. The Richfield Oil Company already held a 50 per cent interest in the compression plant and the remainder, with contracts, was secured for $75,000. The plant has a daily capacity of 10,000,000 cubic feet. Extracted gasoline is being piped to the Richfield refinery at Rioco, six miles north of the plant.

ANOTHER ABSORPTION PLANT FOR ATHENS GASOLINE CO.

A gasoline absorption plant, completion date for which is estimated as the latter part of July, is being built by the Southwestern Engineering Company for the Athens Gasoline Company at the Rosecrans fields. The approximate cost of the plant will be $45,000, according to the Southwestern Engineering Company. Plans for the plant were drawn by the Southwestern.

ATHENS PLANT FOR UNION OIL

On June 12 a two-unit gasoline absorption plant erected at the Athens oil fields by the Union Oil Company of California began operation. The plant is of the same type as a recent addition to the Union's absorption equipment at Dominguez.

ABSORPTION PLANT IS UNDER WAY AT BUENA VISTA

During June a gasoline absorption plant was rushed to completion by the Federal Drilling Company at its new well south of the Buena Vista flats region. Prior to completion of the plant, which went into service on June 28, an estimated gas flow of 600,000 cubic feet daily was giving a daily yield of 1500 gallons of gasoline, the gas testing two and a half gallons to the thousand cubic feet. The well, under capacity conditions, will yield 4,000 gallons a day, according to the company.

A second well which is also expected to show a good gas yield, is now under way and will be in production by the middle of July. The present absorption plant will handle the gas flow from both wells. G. K. Steinbeck of Los Angeles and P. D. Elder of Maricopa had charge of the plant's installation for the company, and Mr. Elder will superintend its operation.

BULLETIN ON ABSORPTION PLANTS IS AVAILABLE

C. F. Braun and Company of Alhambra, Calif., have a new bulletin descriptive of absorption plants, on the construction of which the company has specialized during the past several years. A request for bulletin number 117 may be made of the company by those interested.

NEW TYPE STABILIZER FOR NATURAL GASOLINE

A patent covering a new type of natural gasoline stabilizer has been granted to the Phillips Petroleum Co., Bartlesville, Okla. The Youker process rectifies the natural gasoline by counter-current contact with incoming raw gas. In addition to being a process for recovering a gasoline of desired volatility from natural gas, it is the belief of the inventor that the process may be adapted to the recovery of helium gas. In making application for the patent Mr. Youker dedicated the process to the government for any use that may be desired to make of it either for natural gasoline or helium extraction. In simplest terms, the apparatus for the process consists of a compressor, cooling coils, liquid trap and fractionating column.

"WEMCO" Double Pump Valve

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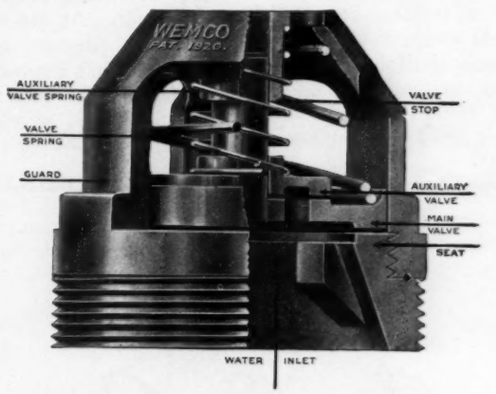

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If you will give us the make and size of your pump and general conditions we will gladly submit a report showing the saving we can make for you.

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Subscription: 1 Year, $2.00; 3 Years, $5.00, in Advance

Testing Natural Gas *for* Gasoline

(Continued from Page 15)

pump used for this test shall be absolutely free from leakage in order to prevent air mixing with the gas being tested. In-leakage of air will cause a low test and the error is undeterminable. Consequently, the vacuum pump used shall be of the cross-head type with the piston rod passing through a stuffing box which when packed will prevent all leakage. The vacuum pump shall be of such a capacity that it will maintain atmospheric pressure on the meter with the compressor running at rated speed under any field vacuum condition the operator may encounter.

B. *Test Meter*

The test meter shall be installed at the intake of the compressor. The meter shall be scaled to one hundredths of a cubic foot. At the intake of the meter, a U-tube pressure gauge shall be connected so that a constant pressure can be carried on the meter. A thermometer shall be placed as near the outlet of the

(Continued on Page 38)

Stockton
Fire Brick Company

MANUFACTURERS of Superior Refractories for Gas Generators and Boilers, all types of Baffle and Furnace Tile. Our "*Gasco*" Brick, developed by us after extensive research work, are unequalled for service in the Gas industry and are being very generally used by the gas plants in this territory. We also manufacture a high grade Insulating Brick under the trade name "*Diatex*" and "*Stockton Brand*" High Temperature Furnace Cement.

OFFICE:
Rialto Building
San Francisco

WORKS:
Stockton
California

Can Better Ranges be Sold at a Profit?

(Continued from Page 21)

being kept clean. Sentiment, too, enters largely into the sale of a gas range just as much as it does into a richly upholstered davenport, or a luxurious, scientifically constructed mattress, built for restful sleep.

Cash in on Sentiment

Therefore, in capitalizing sentiment and telling the public what merchandise will do for them, do not forget that the sales arguments as presented by the sales person must harmonize with and supplement the advertising appeal. It cannot be carried in print alone. It is important that the sales persons should know the technical characteristics of a range—or any merchandise—but they should also be able to weave around the merchandise a consistent Better Homes picture, of a glistening white range in a beautiful kitchen, dwelling upon the appeal of appetizing cookery and its effect upon all the family, and upon the pleasure of working with efficient equipment, and the economy in kitchen management.

A cooking school is a profitable publicity feature, as are practical working departmental demonstrations, and it is needless to say that an effective window display should tie-in with any well conducted advertising campaign.

Plan a gas range campaign carefully, on a basis sufficiently liberal to command attention, carry it over a sufficient time to insure results, and it can hardly be imagined that such an effort would not prove successful and profitable in any store in any town.

Purchasing Activities

(Continued from Page 24)

the writer feels their title is well chosen. However, in addition to "negotiating," the true function of the purchasing department is to render service, and this is particularly true in public utility work where any delay which interrupts the service means a hardship to the public, our customers.

To summarize, in conclusion, there are two fundamentals necessary to the Public Utility Purchasing Department: First, a sound policy, coupled with judgment and experience; second, a flexible, smoothly-operating office administration.

BUCK STOVE AND RANGE COMPANY BUILDS WAREHOUSE

R. E. Danford, territorial manager for the Buck Stove and Range Company, with offices in San Francisco, has announced that this company is completing a new two-story building, to combine office and warehouse, with 10,000 square feet of floor space. The new address will be 721-723 Bryant street.

NO MERE TALK COULD produce the existing record of CHAPLIN-FULTON in regulator PERFORMANCE

High-Pressure Reducing Regulator

The function of this regulator is to reduce the well or line pressure to such a number of pounds as may be safely handled by the low pressure regulator.

Our regular iron body class may be used on any inlet pressure up to 600 lbs. For higher pressures we make special bronze body regulators. Get a copy of our catalogue, today.

The Chaplin-Fulton Mfg. Co.

Organized 1884 — Oldest Builders of Gas Regulators in the Country. Built in all Sizes, From 1 Inch to 24 Inches; For All Service. 1 oz. up to 1,600 Lbs. Pressure to Square Inch.

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Safety Gas Main Stopper Company

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C. B. BABCOCK COMPANY
Western Representatives

768 Mission Street
San Francisco

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Los Angeles, Cal.

Testing Natural Gas *for* Gasoline

(Continued from Page 36)

meter as possible, so that the volume can be corrected to 60° F. The meter shall be within 3% of correct by displacement test. The test meter shall have its bellows suitably treated to prevent the absorption of "gasoline" vapor from the gas passing through it.

C. *Compressor*

The compressor shall be of the crosshead type, with piston rod packed to prevent the gas from leaking and escaping to the air. Its capacity shall be 2½ cubic feet of gas per minute at atmospheric pressure when run at rated speed with a tolerance of ½ cupic foot per minute.

D. *Cooling Coil*

The cooling coil shall be built of ⅜-inch O. D. copper tubing and shall be thirty feet long, with a tolerance of ten per cent for convenient connections. The coil shall have a drop of not less than ¾ inch per foot in order to secure proper drainage. The cooling water shall be held at 60° F. with a five degree tolerance above or below, temperature to be taken at the center of the bath.

E. *Accumulator*

The accumulator shall hold at least one quart of condensate and shall be placed in a bath of water. It shall have a baffle above the intake opening to prevent the condensate from blowing out through the pressure relief valve. The accumulator shall be held at 60° F., with a five degree tolerance above or below.

F. *Drips*

Drips shall be placed before and immediately after the vacuum pump, to collect any oil or water that may be in the line. This protects the meter and other machinery from being stopped up with foreign substances.

G. *Three-Way Valve*

There shall be a 3-way valve between the cooling coils and accumulator, connected in such a way as to allow passing the gas and condensate from the coils to the atmosphere, thus closing off the accumulator.

Note.—Connections between the various parts of equipment may be made with flexible tubing, hose or pipe. The entire apparatus must be absolutely free from leaks under operating conditions.

2. Procedure

Before starting compression test, let the machine run with the pressure on meter constant and pressure on coils at 250 lbs., until "Natural gas condensate" starts to form in the accumulator.

The pressure on the meter is controlled at any desired value by the amount of gas furnished the compressor by the vacuum pump, and a valve to vent the excess gas to the air.

Not less than 20 cubic feet of gas shall be compressed in order to thoroughly purge the meter and bring the condensation in the coils to equilibrium.

The compressor shall be operated at not less than rated speed.

When the "natural gas condensate" is forming at normal rate, drain all of it from the accumulator without relieving the pressure and start the test with 250-lb. gauge pressure on coils.

At least 13.2 cubic feet of gas corrected for temperature and pressure to the base required shall be run through the machine.

Also the quantity of gas passed should be sufficient to make not less than 100 c. c. raw condensate. When the required volume of gas has been compressed, the 3-way valve between the cooling coils and accumulator is turned to close off the the accumulator and discharge the gas from the coils to the atmosphere. This must be done before stopping the compressor. It is necessary that a running start and stop be made on the test.

All the pressure is then relieved from the accumulator through the needle valve used for regulating the pressure. The gas shall not be relieved from the accumulator at a faster rate than the gas was metered. The condensate is then drawn from the accumulator into a graduated cylinder. The graduate shall be brought to 60° F. before the condensate is drawn from the accumulator tank. The graduate shall have a nominal capacity of not less than twice the volume of raw condensate. The temperature of the condensate, if not already 60° F., shall be steadily raised to 60° F. at a rate slow enough that there will be no condensate mechanically carried over.

3. Computation of Yield

The gallons of fluid per million cubic feet of gas may be computed conveniently according to the following formula:

$$\frac{264.2\ B}{A} = X \text{ gallons of fluid per million}$$

Where A = the total corrected volume of gas used, and B = the total "natural gas condensate," measured in cubic centimeters at 60° F.:

The result (X) is gallons per million, the volume of liquid being measured at 60° F., and the volume of gas being measured at 60° F. and the required pressure base.

Stauffer's *FERROX* Purifier

meets these essential requirements of a good Gas Purifier

A highly active Iron precipitate, with a high minimum Iron content

A thoroughly impregnated and porous bulky mass, ready to use, no mixing, no delay, always uniform

A dependable source of supply

Manufactured by

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Pioneer manufacturers of Industrial Chemicals on the Pacific Coast.

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Westinghouse Positive Fluid Gas Meter. An all-metal meter for either HIGH or LOW Pressure, Manufactured or Natural Gas.

Specially adapted to Commercial or Industrial Services.

Ironclad Cast Iron Dry Gas Meter—for Domestic and small Industrial or Commercial Services, either Natural or Manufactured Gas.

Prices and Complete Information gladly furnished on request to office nearest you.

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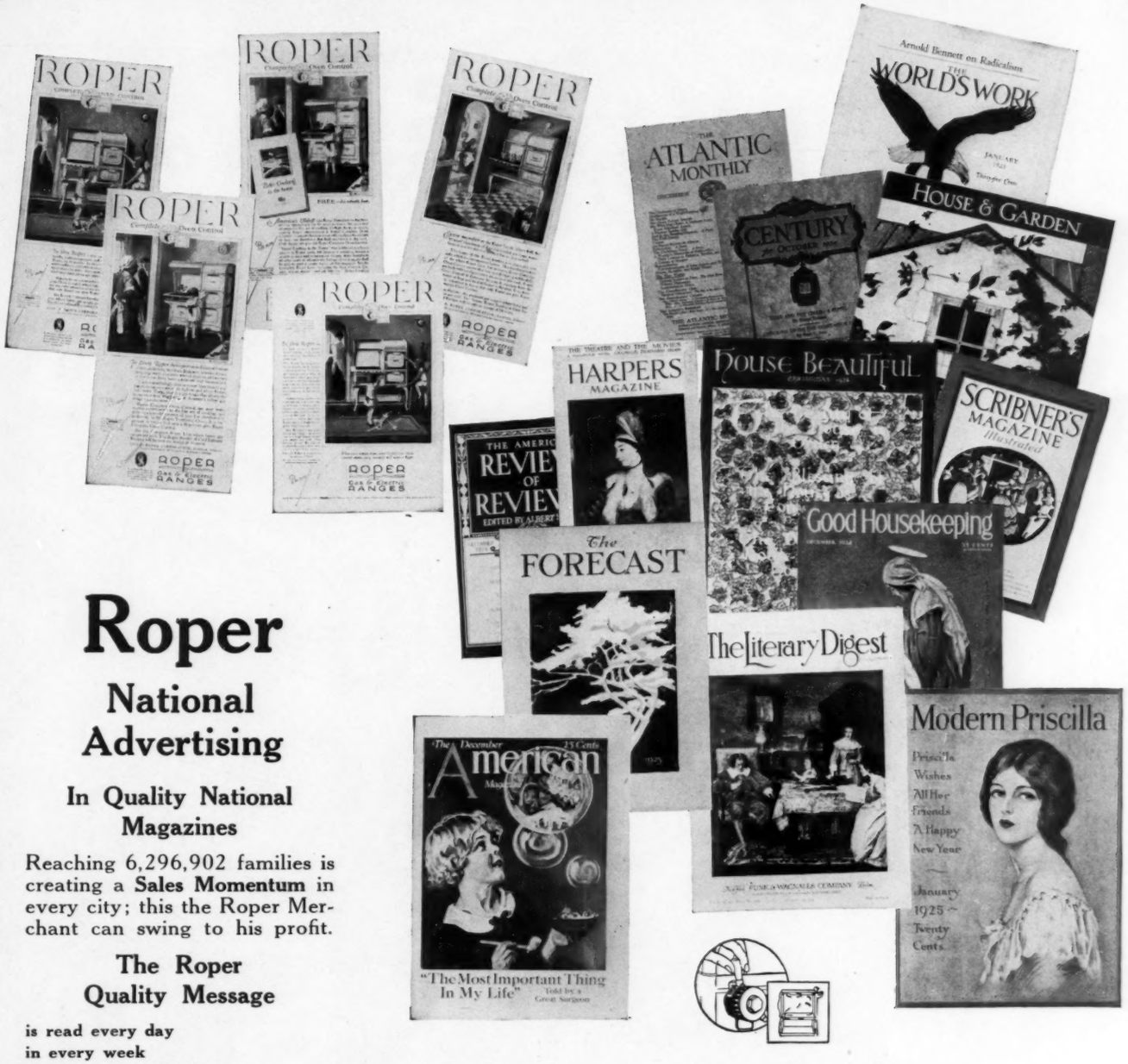
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in every month of the year
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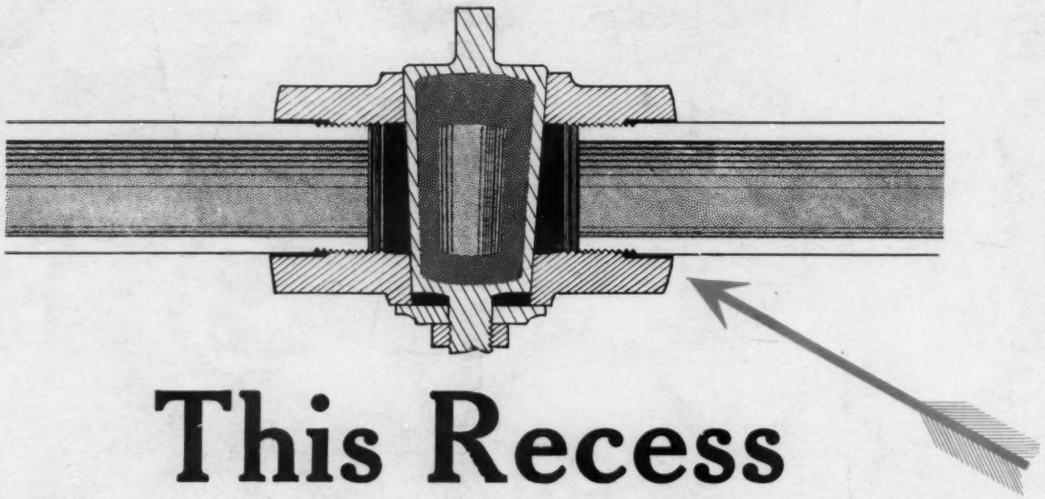
GAS RANGES

BE SURE THE ROPER PURPLE LINE ═ AND THE ROPER COMPLETE OVEN CONTROL ARE ON THE RANGE YOU SELL



This Recess Protects the Line

LATTIMER-STEVENS Recessed Stop Cocks are a positive protection to lines in which they are used. They provide added strength to the line at its weakest point where the thread begins.

These stop cocks are made with a deep recess on both ends. Carefully reamed out to fit the pipe, this recess forms a close-fitting sleeve which avoids breakage of the pipe where cutting the thread has weakened it.

The stop cock itself is made of a high quality grey iron body with red brass key ground in. Each stop cock before it leaves the factory is tested both open and closed by heavy air pressure under water.

Lattimer-Stevens Recessed Stop Cocks are made in flathead style, galvanized, in 1¼", 1½" and 2" sizes.

Stop Cocks without recess also furnished in sizes from ¾" to 2".

The Lattimer-Stevens Company

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Lattimer Stevens

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